B. PHARM. 1ST SEMESTER II

SUBJECT: PHARMACEUTICS II (BP-201)

16 Marks Question

1. Define surgical dressing & sutures with their properties and explain their standards.
2. Write short notes on (any four)
   i) Pessaries ii) Effervescent granules iii) Throat paint iv) Elixir
3. Define prescription and discuss about handling of prescription.
4. Define emulsion and give its method of prescription of emulsion & how you will detect types of emulsion.
5. Define prescription and discuss about handling of prescription.
6. Explain surgical dressing and sutures and give their standards.
7. Describe about surgical dressing.
8. Explain about catgut.
9. Discuss containers & closures for dispensing of preparation.
10. Describe in detail about Emulsion.
11. Explain in brief about suppositories bases.
12. Explain good qualities of suspension & discuss about formulation of suspension.
13. Define prescription & discuss about handling of prescription.
14. Define emulsion. How will you detect type of emulsion? Explain preparation of emulsion.
15. Give ideal characteristics of suppository base & Explain classification of suppository bases.
16. Define sutures and Ligatures. Give the production, sterilization, standardization and labeling of catgut sutures.
17. Discuss the various sources of errors while dispensing a prescription. How are these errors corrected?
18. Explain the term prescription. Discuss the procedure which should be adopted by the pharmacist while handling the prescription for compounding and dispensing.
19. Explain the various parts of prescription. Discuss the various precautions which should be taken by a pharmacist while dispensing a prescription.
20. Describe in details about soft gelatin capsule.
21. Describe in details about suppositories.
22. What are suppositories? Classify different suppository bases used in the preparation of suppositories. Describe briefly each base.
23. Discuss in brief the various methods of preparation of suppository.
24. Write short notes on the following-
    a. Theobroma oil
    b. Displacement value
    c. Pessaries
    d. Fusion method of preparation of suppository.
25. Describe in detail about ointment bases.
26. Explain in brief about capsule.
27. Describe in brief about Eye drops and Ear drops.
28. Write in details about preparation of ointment.
29. Write a short notes on (any four)
    a. Tinctures
    b. Liniment
    c. Effervescent granules

d. Eye drops

30. Write a short notes on (any four)

a) Aromatic water
b) Glass
c) Elixir
d) Liniments
e) Glycerites

10 Marks Question

1. Give classification of ointment bases & describe them with suitable examples.
2. Give a detail account of eye and ear drops.
3. Discuss container & closure for dispensing of prescription.
4. Explain classification of ointment bases.
5. Define syrup and explain its additives used in formulation of syrup.
6. Discuss briefly about sources of error in prescription & care required in dispensing prescription.
7. Define suspension. Explain formulation of suspension.
8. Explain classification of ointment bases.
9. Explain about parts of prescription with example.
10. Explain in details about sutures and its standards.
11. Elaborate an account of granular powders.
12. Give any two methods for preparation of ointments.
13. Explain hard gelatin capsules and difference between soft and hard gelatin capsule.
14. What do you mean by emulsion and give its formulation.
15. Write a short note on Theobroma oil.
16. Write a short note on fatty bases.
17. Define prescription and its type. Explain in brief about sources of error in prescription.
18. Which type of materials used for making of containers?
19. Describe in brief about liquids to be instilled into body cavities.
20. Define the term prescription. Describe in brief the various parts of prescription.
21. Give the English meaning of following Latin terms
    i) Capsula
    ii) Emulsion
    iii) Liquor
    iv) Aqua
    v) Hora
    vi) Sextis horis
    vii) Quarter in die
    viii) Capiendus
    ix) Pasta
    x) More dicto

8 Marks Question

1. Define prescription. Discuss in detail various parts of prescription.
2. Discuss container and closures for dispensing of prescriptions.
3. Explain about surgical dressing.
4. Write short notes on (any two) - Aromatic water, Dentifrices
5. Explain about eye and ear drops.
6. What is suspension? Explain different types of additives which are used in the preparation of suspension.
7. Define the term suspension? Discuss in brief about the formulation of suspension
8. Define capsule. Differentiate between hard & soft gelatin capsule.
9. Discuss about material used for making of containers.
10. Write a short note on closures.
11. Give the advantages and disadvantages of powders.
12. Explain sources of error in prescription.
13. Write a short note on surgical dressing.
14. Describe in brief about Eye drops.
15. Explain the reasons for the following statements-
    i. Syrups are not prepared in potable water.
    ii. Linctuses should be taken in small doses without any dilution.
    iii. Soap is included as one of the ingredient in some of the liniments.
    iv. Liniments should not be applied to the broken skin.
    v. Gargles are dispensed in concentrated form.
    vi. Glycerin is used as a base in throat paints
    vii. Oily vehicles are not used in the preparation of nasal drops.
16. Define surgical dressing and sutures with their properties.
17. Define emulsion and how will you detect types of emulsion.
18. Define Prescription. Explain in brief about parts of prescription and their functions.
19. Enlist types of prescription and give sources of error in prescription.
20. Define surgical dressing & sutures with their properties.
21. Describe in brief aromatic water.
22. Write a short note on Eye & Ear drop.
23. How to manufacture of suppositories.
24. Explain in detail about evaluation of suppositories.
25. Give the general method of preparation, packaging and storage of suppository.
26. Explain qualities of good container & its type
27. Discuss about material used for making of container.
28. Write short notes on closure.
29. Explain about liquids to be applied to the skin.
30. Define and classify syrups. Write the difference between I.P and USP syrup.
31. Explain method of preparation of Aromatic water.
32. Write a short note on hard and soft gelatin capsule.
33. Which type of problems was arising for dispensing powder?
34. Give dispensing of powders involving special problem.
35. Write a short note on effervescent granules.
36. Write a short note on Aromatic water with example.
37. Elaborated in detail about Elixirs.
38. Write a Short note on emulsifying agent.
39. Describe in details about preparation of Emulsion.

40. Write in details about syrup.
41. Write a short note on Inhalation and spray.
42. What are ointments? How are they classified? Describe in brief the various types of ointments.
43. What are ointments? Classify different ointment bases used in the preparation of ointments. Describe briefly each base.
44. Explain in brief about liquids to be used in mouth.
45. Define the term prescription. Explain in brief about parts of a prescription.
46. Explain in details about types and excipients used in filling of capsule.
47. Explain about ophthalmic ointment.
48. Explain about formulation and method of dentifrices.
49. Explain in details about formulation of suspension.
50. Define syrup. Which types of component are preferred for formulation of syrup?
51. Explain about Tincture.
52. Write a short note on Dentifrices.
53. Write in detail about tooth powder and tooth paste.
54. Give the types and formulation of jellies.
55. Explain about Eye drop.

6 Marks Question

1. Differentiate between flocculated suspension and non flocculated suspension.
2. Give the English meaning of following Latin terms
   Bis in die, Pulvis, Sumendus, Post cibos, Linimentum, Applicandus
3. Describe the method of preparation of tincture.
4. What are the qualities & uses of dentifrices?
5. Write a short note on lotion.
6. Explain about mixing of powders.
7. Define ointment & gives ideal characteristics of ointment base.
8. Differentiate between o/w and w/o type of emulsion.
9. Explain in detail various parts of prescription.
10. Describe briefly soft gelatin capsule.
11. Write a short note on Glycerites.
12. Give the English meaning of following Latin terms.
13. i) Auristille ii) Anti cibos iii) Ter in die iv) Pulvis v) Tabella
14. Define container & write a short notes on Glass.
15. Write a short notes on (any two)
    i) Gargle ii) Enema iii) Aromatic water iv) Spirit v) Lotion vi) Liniment
16. Differentiate between- a) Lotion & Liniment b) Syrup & Elixir
17. Define Prescription. Discuss in detail about various parts of prescription & their function.
18. Define the following terms- Lozenges, Suspension
19. Define Tincture & describe the method of preparation of tincture.
20. Explain about handling of prescription.
21. Write a short note on Enemas.
22. Differentiate between hard gelatin and soft gelatin capsule.
23. Explain in details about packing of powders.
24. Short notes on Glass.
25. How to handle prescription?

26. Define powder. Give its advantages and disadvantages.
27. Write a short note on Liniment.
28. Explain about jellies preparation.
29. Define an ointment. How does it differ from paste? What are the desired properties of an ideal ointment base?
30. Write a short note on Lotion.
31. Define dentifrices. Give its uses and qualities of good dentifrices.
32. Explain about method of preparation of Tincture.
33. Write a short note on Rubber material used for making closures.
34. Explain model methods of prescribing with its example.
35. Explain about classification of powder.
36. Define syrup & explain its additive used in formulation of syrup.
37. Differentiate between o/w & w/o types of emulsion.
38. Explain in details various parts of prescription.
39. Describe briefly soft gelatin capsule.
40. Define ligature and sutures. Explain ideal properties of ligature and sutures.
41. Explain about throat paints.
42. Write a short note on water soluble bases.
43. Define capsule. Write in details about evaluation of capsules.
44. Define soft gels. Give advantage and disadvantage of soft gels.
45. Give the advantages & disadvantages of powders.
46. Explain in details about cachets.
47. Explain in brief about cream.
48. Describe in detail about paste.
49. Write a short note on Pessaries.
50. Calculate the displacement value of zinc oxide in Theobroma oil suppositories containing 40 % of zinc oxide is prepared in 1 g mould. The weight of 8 suppositories is 11.74 g.
51. Explain in details about displacement value.
52. Define elixir. Give its formulation.
53. Which type of materials used for making closures?
54. Describe in details about method of preparation of powders.
55. Explain about sources of error in prescription.
56. Differentiate between flocculated and deflocculated suspension.
57. Write a short note on trituration method for preparation of ointment.
58. Write in details about preservation of emulsion.
59. Differentiate between Emulsion and Suspension.
60. Which type of care was required in dispensing prescription?
61. What are different parts of prescription? Give importance of each with suitable examples.
62. Give the method of preparation of effervescent granules.
63. Explain about types of containers.
64. Give advantages, disadvantages and classification of plastics.
65. Write a short note on metal container.
66. What does the term inscription means? What is the importance of date in prescription?
67. Write the importance of modern method of prescribing the drug.
68. Write the importance of label in the dispensing.
69. Write a short note on Lozenges or Trouches.
70. Define closures. Explain about types of closures.
71. Define the term powder. What are the advantages and disadvantages of powders as unit dosages forms?

72. Define the term powder. Classify different types of powders. Discuss the bulk powders which are meant for external use.
73. Discuss the different methods of mixing of powders.
74. Describe in brief about effervescent granules. Give the methods of preparation of effervescent granules.
75. Discuss in brief about the method of preparation of tablet triturates. How are these packed and stored?
76. What are syrups? How are they differing from elixirs and linctuses? Write in brief the different methods of preparation of syrups.
77. Match the items of column I with appropriate items in column II.

Column I	Column II
A. Linctuses	i) are sweet aromatic preparations.
B. Liniments	ii) are liquid preparation meant for external application without friction
C. Elixirs	iii) are viscous liquid preparation meant for relief of cough.
D. Gargles	iv) are viscous liquid preparation used for mouth and throat infection.
E. Lotions	v) are liquid & semi liquid preparation meant for application to skin with friction.
F. Throat paints	vi) are aqueous solutions used to prevent or treat throat infection.

78. How will you dispense the following powders?
    i) Powders containing volatile substances
    ii) Powders containing hygroscopic and deliquescent substances.
    iii) Powders containing efflorescent powder.
    iv) Powders containing potent drugs.
79. Write short notes on (any two)
    a. Dusting powders
    b. Geometric dilution
    c. Effervescent granules
    d. Bulk powders for external use
    e. Bulk powders for internal use.
80. Define the terms (any three)
    i) Emulsion
    ii) Suspension
    iii) Eutectic mixtures
    iv) Geometric dilution
    v) Lozenges
    vi) Dentifrices
    vii) Ointment
    viii) Spirit.
    ix) Rubefacient
    x) Cream
    xi) Container
    xii) Closure
    xiii) Jellies
    xiv) Enemas
    xv) Aromatic water
    xvi) Counter irritants

4 Marks Question

1. Differentiate between hard gelatin capsule and soft gelatin capsule.
2. Give advantages and disadvantages of modern methods of prescribing.
3. Give the difference between lotion & liniment.
4. Give the method of preparation of Aromatic water.
5. How to prepared concentrated aromatic water?
6. Explain about types of closures.
7. How to prepared spirit?
8. Give functions & characteristics of surgical dressing.
9. Write down the classification of surgical dressing.
10. Give the types of cream.
11. Write a short note on paper and board.
12. Write a short note on disposable enemas.
13. Write a short note on douches.
14. Give the adjuvant used in preparation of eye drops.
15. Write a short note on plastics.
16. Which types of container are preferred in case of eye drop?
17. Write a short note on Throat paints.
18. Write a short note on Ear drop.
19. Give in detail about moulded Lozenges.
20. Give the formulation of eye drops.
21. Define eye drop. Give essential characteristics of eye drop.
22. Write down containers, labeling condition of gargles and throat paints.
23. Define container. Give ideal qualities of good container.
24. Give the English meaning of following Latin terms (any four)
    - i) Ante cibos
    - ii) Ter in die
    - iii) Capiendus
    - iv) Applicandus
    - v) Post cibos
    - vi) Bis in die
    - vii) Linimentum
    - viii) Pulvis
    - ix) Hora somni
25. What are the qualities of good dentifrices?
26. Define suppositories and its types.
27. Write the advantages of emulsion.
28. How will you distinguish between w/o and o/w type emulsion?
29. Differentiate between fine powder and granules.
30. Explain in brief about new trends of suppositories.
31. Differentiate between Aqueous cream and Oily cream.
32. What do you mean by cream? Which type of containers, labeling and storage are preferred in case of packing cream.
33. Write the significance of identity of prescriber in prescription.
34. Write the importance of age in the prescription.
35. Write the advantages and disadvantages of prescribing the drugs by its proprietary names.
36. Describe method of preparation of tinctures.
37. Differentiate between Syrup and Elixir.

38. Differentiate between paste and ointment.
39. Differentiate between Lotion and Liniment.
40. Define ointment and give its ideal characteristics of an ointment.
41. Define following terms- Suspension, Lozenges, Paste, and Emulsion.
42. Explain about throat paints.
43. Explain types of containers.
44. Give ideal characteristics of suppositories bases.
45. Define the term prescription.
46. What is the importance of Latin language in prescription writing?
47. Define the term superscription.
48. What does the term subscription mean?
49. Define emulsion and give its advantages.
50. Define eye ointment. Give ideal properties of ophthalmic ointments.
51. Differentiate between o/w and w/o type of emulsion.
52. Explain about Gargles.
53. Name the various types of prescription which are generally received by pharmacist in his drug store.
54. What is the difference between emulsion and suspension.
55. Write a short note on oleaginous bases.
56. Write a short note on absorption bases or anhydrous bases..
57. Write a short note on emulsion bases.
58. Define capsule. Write down the advantages and disadvantages of capsule.
59. Write in details about Lotion.
60. Give advantages and disadvantages of modern method of prescribing.
61. What are the qualities and uses of dentifrices?
62. Write a short note on fusion method for preparation of ointment.
63. Write a short note on chemical reaction method for preparation of ointment.
64. Write a short note on emulsification method for preparation of ointment.
65. Define suppositories. Give its advantages and disadvantages.
66. Give advantages of hydrogenated oils over Theobroma oil.
67. Explain about ideal characteristics of ointment bases.
68. Differentiate between hard gelatin & soft gelatin capsule.
69. Differentiate between syrup & Elixir.
70. Give disadvantages of cocoa butter as suppository bases.
71. Write short notes on effervescent granules.
72. Define suspension. Give its advantages and characteristics of suspension.
73. Explain about standard for surgical dressing.
74. Write a short note on tablet triturates.
75. Write a short note on moulded tablets.
76. Describe in brief throat paint.
77. Give advantages and disadvantages of modern method of prescription.
78. Describe the method of preparation of tincture.
79. Define container and closures.
80. Short notes on Pessaries.
81. Write a short note on dusting powder.
82. Write a short note on Insufflations.
83. How you will detect types of emulsion.
84. Write a short note on Antioxidant.
85. Write a short note on Dentifrices.

86. Explain about formulation of soft gels.
87. Give the advantages and disadvantages of cachets.
88. Differentiate between flocculated suspension & non flocculated suspension.
89. Explain the applications of syrups in pharmaceutical dosage form.
90. Describe with example the method of preparation of Glycerites.
91. Give classification of suspending agents with suitable examples.
92. Explain creaming and cracking of emulsion.
93. Explain about displacement value of suppositories.
94. Explain about pricing the prescription.
95. Explain different parts of prescription?
96. Write in detail about handling of prescription?
97. Define and classify emulsifying agents.
98. Explain in short about method of preparation of emulsion.
99. Enlist ideal properties and principal of suspension.
100. What are surgical aids and give their importance in medicine and Pharmacy.
101. Write a short note on surgical dressing.
102. Write about in detail on standards of sutures.
103. Define sutures and ligature with their suitable example.
104. Explain method of preparation of tincture.
105. Write a short note on Ear preparation.
106. Give a detail account on methods of compounding ointments.
107. Define syrup and their characteristics according to I.P.
108. Write a note on effervescent granules.
109. Differentiate between paste and ointment.
110. Write the qualities of an ideal suspension.
111. Give in brief the storage of suspension.
112. Write the difference between flocculated and deflocculated suspension.
113. Give the English meaning of following Latin terms
    i) Tussi urgent ii) Omni nocte iii) Nebula iv) Anti cibos
114. Explain about types of glass.
115. Define following terms.
    i) Spirit ii) Gellies iii) Douches iv) Glycerites
116. What are the label conditions for following dosage forms?
    i) Suspension ii) Mouthwash iii) Ointment iv) Liniment
117. Write a note on oral suspension.
118. Define and classify suppositories.
119. Give the English meaning of following Latin terms
    ii) Cremor ii) Auristille iii) Sumendus iv) Inter cibos
120. Add a note on method of compounding syrup.
121. Differentiate between sutures and surgical dressing.
122. Define aromatic water and give example of Aromatic water.
123. Mention the advantages of powders.
124. What are the disadvantages of powders?
125. Write briefly about dusting powders
126. What are the advantages of effervescent granules?
127. Describe in brief about the advantages of cachets.
128. Write briefly about geometric dilution.
129. Describe different types of cachets.

130. What are syrups? How do they differ from elixirs?
131. Write the importance of syrups.
132. Give in brief, qualities of an ideal ointment base.
133. Write the advantages and disadvantages of absorption base.
134. Mention advantages and disadvantages of suppositories.
135. What is displacement value? How will you find the displacement value of the drug?
136. Explain the reason for following statements-
    a. Lubricated jellies are required to be sterile.
    b. White soft paraffin should not be used in preparation of ophthalmic ointment.
137. Write in brief about various additives used in preparation of ointments.
138. Define following terms
    i) Surgical dressing ii) Sutures iii) Catgut iv) Douches
139. Define following terms.
        i) Cream ii) Spray iii) Enema iv) Lozenges

2 Marks Question

1. Define the term powder.
2. Explain the term unit dosage form.
3. Define the term Pessaries.
4. Mention different methods of preparation of suppository.
5. Name the different types of suppository bases.
6. Why calibration of mould is necessary before using it?
7. Define the term suppository.
8. What is displacement value?
9. Define the term tablet triturates.
10. What do you mean by cachets?
11. Explain the term compound powders.
12. Name the bulk powders which are used externally.
13. What is the minimum weighable quantity of powder which can be weighed on dispensing balance?
14. Define the term drought.
15. Why is glycerin used as a base in throat paints?
16. Why are gargles dispensed in concentrated form?
17. Write the uses of douches.
18. Explain the term biphasic liquid dosage form.
19. Define term suspension.
20. What does the term flocculated suspension mean?
21. Name the three flocculating agents used in the preparation of suspension.
22. What does term non flocculated suspension mean?
23. Define the term ointment.
24. What is meant by term paste?
25. Define term jellies.
26. Name the different ointment bases which are used for the preparation of ointment.

SUBJECT- PHARMACEUTICAL INORGANIC CHEMISTRY-II (BP-202)

Questions carry 16 marks

1. Define antidote, give its classification, mechanism of action, reasons of poisoning, and explain compound act as an antidotes.
2. Define antacid, give its classification, mechanism of action &explain aluminum, & calcium containing antacid.
3. Define topical agent, give its classification, and explain each category with examples.
4. Define antimicrobial agent, its classification, mechanism of action, &explain compound act as an antimicrobial
5. Define astringent, give it's mechanism of action, uses & explain compound act as an astringent.
6. Define 'trace element' & explain role of each essential trace ions in human body.
7. Define expectorant & emetics, give it's mechanism of, its classification and explain the compound act as expectorant and emetics.
8. Write method of preparation and uses of following inorganic compound.
    a. Aluminium hydroxide gel
    b. Silicone polymer
    c. Kaolin
    d. Copper sulphate
9. Write method of preparation and uses of following inorganic compound.
    a. Magnesium sulphate
    b. Rochelle salt
    c. Mercurous chloride
    d. Calamine
    e. Titanium dioxide
10. Name the compounds of calcium and magnesium used as antacid. Give method of preparation and uses of calcium carbonate or magnesium trisilicate.
11. Write notes on:
    (a) Kaolin (b) Activated charcoal
    (c) Bismuth compounds (d) sodium potassium tartarate
12. Write notes on:
    (a) Magnesium containing antacids (b) Aluminium containing antacids
    (c) Combination of antacid preparations (d) Saline cathartics
13. Give method of preparation, action, uses for the following compounds:
    (i) Potassium iodide (ii) Antimony potassium tartarate (iii) Copper sulphate
    (iv) Ammonium carbonate (v) Zinc sulphate (vi) Ammonium acetate
14. Give method of preparation, action, uses for the following compounds:
    1) Purified talc 2) zinc oxide 3) hydrogen peroxide 4) sodium perborate
15. Give method of preparation, action, uses for the following compounds:
    1) Potassium permagnate 2) borax 3) hydrogen peroxide 4) silver nitrate
16. Give method of preparation, action, uses for the following compounds:
    1) Yellow mercuric oxide 2) alum 3) aluminium chloride 4) zinc peroxide
17. Briefly explain about the followings.
    [a] Aluminium containing antacids
    [b] Magnesium containing antacids
    [c] Any three combination antacid preparations.
    [d] Saline cathartics
18. Write in detail about the following compounds.

[a] Sulphur [b] Sublimed sulphur [c] Precipitated sulphur [d] Sulphur ointment

19. Write in detail about the major intra and extra cellular electrolytes in our body.
20. Write a note on the following.

[a] Chromium [b] Manganese [c] Molybdenum [d] Sulphur [e] Selenium

Questions carry 4 marks

1. Write short note on heavy metal poisoning.
2. Write short note on cyanide poisoning.
3. Write short note on protective and adsorbent.
4. Write short note on saline cathartics.
5. Write short note on dentifrices & anticaries agent.
6. Write short note on astringent.
7. Write short note on ‘respiratory stimulant.
8. Write short note on antacids.
9. Classify the inorganic compounds acting as gastrointestinal agents.
10. Why antacid are used in combination give reason.
11. Write a difference between antiseptic and disinfectant.
12. Which combination of antacids is commercially available? Why is simethicone added in antacid preparation
13. Some antacid preparations contain both aluminium and magnesium compounds. What is the reason of this combination?
14. Describe the mechanism of action of magnesium containing antacids. Describe the method of preparation milk of magnesia.
15. Compare the antacid properties of various magnesium compounds and indicate their advantages and disadvantages.
16. Give examples of saline laxatives. Compare their advantages and disadvantages.
17. Briefly discus the chemistry and applications of light and heavy Kaolin.
18. Write a brief account of combination antacid therapy.
19. Discuss Al-containing antacids.
20. What are topical agents?
21. Classify topical agents giving suitable examples.
22. What are protective adsorbants? What is their mode of action?
23. Write a brief account of silicon polymers as protectives.
24. Define the terms:
    (a) Astringent (b) Bactericidal (c) Disinfectant (d) Germicide.
25. Define the terms: Cements and fillers as applied to dental practice.
26. What are expectorants? How do they act?
27. Describe the role of ammonium compounds as respiratory stimulants.
28. Write an account of preparation, properties, and various applications of ammonium chloride.
29. Give method of preparation and assay for the aromatic spirit of ammonia.
30. What is the biochemical role of iodine in the body?
31. What are deficiency symptoms of iodine?
32. What is the role of activated charcoal or kaolin in poisoning?
33. What are antidotes? What is the mechanism of action of antidotes in poisoning?
34. What are major intra-and extra-cellular electrolytes?
35. Discuss the important functions of sodium ions in the body.

36. Discuss the conditions leading to hypokalemia and hypokalemia.
37. Give the important functions served by chloride and bicarbonate ion.
38. Make a list of sodium chloride formulations used in electrolyte replacement therapy.
39. How the acid base balance of the body is maintained?
40. Describe the importance of calcium to the body. How can it be administered to treat hypokalemia?
41. What is meant by oral rehydration therapy?
42. Differentiate between dysentery and diarrhea.
43. Give biological role of zinc and molybdenum.
44. Give biological role of chromium and selenium.
45. Give biological role of sulphur and iodine.
46. Give biological role of sodium and potassium.
47. Give deficiency disorder of iodine, iron, zinc, chromium.
48. Give deficiency disorder of molybdenum, selenium, sulphur, manganese.
49. Give biological sources, daily requirement, deficiency and role of iron.
50. Write about the mechanism of action of acidifiers.
51. Define the terms [a] Achlorhydria [b] Hypochlorhydria [c] Systemic acidosis [d] Systemic alkalosis.
52. Write the preparation, properties, and test for identification and of dilute hydrochloric acid.
53. Explain about the preparation of ammonium chloride by Sal ammoniac process.
54. Explain about the preparation, properties and uses of aromatic spirit of ammonia.
55. Write the assay and uses of hydrochloric acid.
56. Write in detail about the uses and adverse effects of concentrated hydrochloric acid.
57. Write about the manufacturing process of sulphuric acid.
58. What is mean by slaking?
59. How will you measure the acid neutralizing capacity of antacids [in-vitro]?
60. Write preparation, properties, and uses of sodium bicarbonate and its official's formulations.
61. Write the preparation, properties of sodium carbonate.
62. Explain the properties, and uses of light and heavy kaolin.
63. Write a note on Activated Charcoal.
64. Explain about mixed antacid preparations.
65. Describe the type of cathartics.
66. Write in detail about zinc oxide and its official formulations.
67. Write a note on iodine with respect to pharmaceutical aspects.
68. Describe sodium hypochlorite solution
69. Write the preparation, properties, and uses of boric acid.
70. Describe the pharmaceutical aspects of selenium and selenium sulphide
71. Define anticaries agents. Explain the role of fluorides as anticaries agent?
72. Define dentifrices. List out the official dentifrices.
73. What is meant by desensitizing agents?
74. Describe the important function of chloride ions.
75. Define the following terms.
    [a] Hypochloremia [b] Hyperchloremia
76. Write a brief note on phosphate ions.
77. What is mean by hyponatremia and hypernatremia?
78. Write the role of calcium in our body.
79. Write in brief about the official formulation of sodium chloride.
80. Write in detail about Ringer's solution.
81. Write a short note on ringer lactate solution.
82. Explain about the official preparation of potassium chloride.

83. Describe oral rehydration salt [ORS].
84. Write a note on potential dialysis fluids.
85. Explain the distribution of iron in body proteins.
86. Define the followings. [a] Keshan disease [b] Selenosis [c] Molypdenosis
87. Explain in detail about titanium dioxide.

Questions carry 8 marks

1. Explain role of extracellular & intracellular electrolyte in human body.
2. Explain replacement therapy &combination therapy.
3. Describe the method of preparations of light and heavy magnesium oxide and write their applications.
4. Explain a) Magnesium containing antacids b) Aluminium containing antacids.
5. Explain a) Silver compound as antimicrobial agents b) Iodine preparations as topical agents.
6. What is the role of fluoride as anticaries agents?
7. Describe the role of ammonium compounds as respiratory stimulants.
8. Give method of preparations and uses of following compounds.
   a) Ammonium chloride b) Antimony potassium tartarate
9. Discuss the important function and deficiency condition of sodium and chloride ion.
10. What is mean by oral rehydration therapy?
11. State the requirements for an ideal antacid, how is antacid property evaluated.
12. Classify the inorganic compounds acting as gastrointestinal agents, giving examples.
13. What are antacids? Explain with at least three official compounds as examples.
14. Describe the preparation of light and heavy magnesium oxides, compare their properties and mention their applications.
15. What is antacid? Describe the preparation and use of aluminium hydroxide gel as an antacid.
16. List the compounds of bismuth used as protective's. Outline method of preparation, action and uses for bismuth subnitrate.
17. Give the detail account of antacids official in I.P.
18. Give method of preparation, uses of magnesium sulphate or mercurous chloride (calomel)
19. Define the terms: (a) Protective (b) Adsorbents. Give suitable examples from each category. Explain the mechanism of action of protectives and adsorbants.
20. Write note on:
    (a) Antimicrobial agents used topically.
    (b) Astringents.
    (c) Aluminium compounds as protectives.
21. Explain mechanism of action of antimicrobial astringent agents.
22. Give a brief account of fluorides used in dental products. Compare their relative efficacies, advantages and limitations.
23. Describe briefly various inorganic chemical used in mouth washes, their chemistry and specific Applications in oral hygiene products.
24. Describe the method of preparation, properties, and uses of
    (i) Sodium iodide (ii) potassium iodide
25. Discuss the methods of preparations, uses and assay of any two compounds used in cyanide Poisoning.
26. Describe preparation and of strong iodine solution.
27. Explain briefly the mechanism of poisoning by cyanide. What is the role of (i) sodium nitrite and

(ii) Sodium thiosulphate in cyanide poison cases?

28. Give method of preparation, properties and uses of potassium chloride.
29. Describe electrolyte combination therapy.
30. Define acidifiers. Write the official inorganic acidifiers.
31. Write a brief account of dialysis fluids, their general composition, mode of supply and specific applications.
32. Explain the terms metabolic-acidosis and alkalosis. How are these corrected?
33. Explain about the different type of acidifiers with one example and mention their uses.
34. Write the preparation, properties, and uses of sodium phosphate.
35. Write the preparation, and uses of any one sodium compound which is uses as a urinary acidifier.
36. Write in detail about dilute ammonia solution.
37. Write in detail about hypo phosphorous acid.
38. Explain about the old Leblanc process for the preparation of concentrated hydrochloric acid.
39. Write about chemical properties of concentrated hydrochloric acid with chemical equations.
40. Why hydrochloric acid is called as spirit of salt?
41. What is the composition and uses of aqua regia?
42. Write a brief note on acid –base regulators.
43. Explain about the preparation, properties and uses of the following compounds.
    [a] phosphoric acid [b] strong ammonia solution
44. Write about the Haber's process for the preparation of strong ammonia solution.
45. Explain the preparation, chemical properties, and uses of caustic soda.
46. What is the meant by antacids? Enumerate the official inorganic antacids.
47. Explain about the mechanism of antacid with one example.
48. What are ideal characteristics of antacids?
49. Briefly explain about the aluminium compounds as antacids.
50. What type of combination of antacid preparations is commercially available? Why is simethicone added in antacid preparation?
51. List about the antacid preparations contain both aluminium and magnesium compounds, what is the reason of this combination?
52. Define saline laxatives. Highlight their advantages and disadvantages.
53. Enumerate the bismuth compounds used as protectives. Write the method of preparation, action, properties and uses of bismuth subnitrate.
54. Describe the preparation, properties, and uses of following.
    [a] Kaolin [b] Activated charcoal [c] bismuth compounds
55. Explain about saline cathartics with two examples.
56. Explain in detail about combination antacid therapy.
57. Write a detail account on antacids which are official in I.P.
58. Explain about mechanism of action and uses of aluminium hydroxide gel.
59. Write the preparation, properties, assay and uses of following.
    [a] magnesium hydroxide [b] milk of magnesia [c] magnesium trisilicate
60. Enumerate the advantages and disadvantages of magnesium antacids.
61. Write about the preparation, properties, and uses of the following.
    [a] Light and Heavy Magnesium carbonate [b] Heavy magnesium oxide
62. Explain the preparation, properties, uses and mechanism of action of tribasic calcium phosphate.
63. Define saline cathartics and write one example.
64. Define the term purgatives and laxatives and mention a compound possessing this property.
65. Explain about the preparation, properties, and mechanism of action of magnesium sulphate.
66. List out the sodium compounds which are used as a saline cathartics. Explain any one compound.

67. Define the following terms.[a] Adsorbents [b] Protectives [c] Demulcents [d] Emollients [e] Caustics [f] Antiseptics [g] Astringents [h] Antimicrobial
68. Write about the preparation, properties, and uses of purified talc.
69. Briefly explain about calamine and its formulations.
70. Write a note on zinc stearate.
71. Explain about the preparation, properties, and uses of titanium dioxide.
72. Write a brief note on topical protective agents.
73. Define the following terms.
    [a] Bacteriostatic [b] Disinfectant [c] Antiseptic [d] Sanitizer [e] Astringent [f] cathartics' [g] Topical
74. Enumerate the ideal characteristics of antimicrobial agents.
75. Explain about the various mechanism of action of antimicrobial agents with suitable examples.
76. Explain about the preparation, properties, and uses of alum.
77. Explain the aluminium compounds which are used as an astringent.
78. Describe the preparation, properties [both physical and chemical] ,and uses of the following compounds.
    [a] Zinc sulphate [b] Zinc chloride [c] Zinc peroxide
79. Write a preparation, properties, mechanism of action, and uses of calcium hydroxide.
80. Explain the pharmaceutical aspects of silicon polymers as protective agents.
81. Explain in detail about the mode of action of inorganic antimicrobial agents.
82. Explain the pharmaceutical aspects of following compounds.
    [a] Boric acid [b] Iodine solution [c] Hydrogen peroxide [d] Potassium perganganate [e] Selenium sulfide
83. Write a short note on :
    [a] Potassium permanganate
    [b] Silver nitrate as antimicrobial agents.
    [c] Iodine preparations as topical agents.
84. What are the chlorine compounds used as anti-infective agents? Briefly write their preparation and properties.
85. Define oxidative antimicrobials with examples.
86. Write the preparation, properties and test for purity, assay and uses of sodium perborate.
87. Briefly explain about protein precipitant anti microbial with their mechanism of action. Write the preparation and uses any one of them.
88. Write the preparation, properties, and uses of mercuric compounds as antimicrobials.
89. Explain the following.
    [a] Aluminium compound as antimicrobials.
    [b] Minor topical agents
90. Explain the method of preparation, properties, uses of
    [a] Sodium fluoride [b] Sodium mono fluorophosphate
91. Enumerate the fluoride compounds used in dental products and highlight their relative efficacies, advantages and limitations.
92. Describe the method of preparation, properties, and uses of stannous fluoride.
93. Explain about the preparation, properties, and use of the following compounds.
    [a] Calcium carbonate [b] Calcium phosphate [c] Dibasic calcium phosphate
94. Write the preparation, properties, and use of the following compounds.
    [a] Zinc chloride [b] Mandrel's salt [c] Pumice
95. Explain about the dentifrices containing desensitizing agents.
96. Write a note on

[a] Sodium peroxide [B] Zinc peroxide

97. Define cements and fillers. Describe the preparation, and uses of zinc oxide.
98. Explain about the essential role of potassium in our body and explain about hypokalemia and hypokalemia.
99. Define the following terms.
    [a] Hypercalcemia [b] Hypocalcemia
    [c] Hypermagnesia [d] Hypomagnesia
100. Enumerate the sodium compounds which are used as electrolyte replenishers.
101. Write the preparation, properties, and uses of sodium chloride.
102. List out the calcium compounds which are used as electrolyte replenishers.
103. Write a note on followings.
    [a] Calcium chloride [b] Calcium gluconate and its formulations.
104. Define the following metabolic disorders and how they are corrected.
    [a] Respiratory acidosis [b] Respiratory alkalosis
    [c] Metabolic acidosis [d] Metabolic alkalosis
105. Explain about the preparation, properties, and uses of sodium acetate or potassium acetate.
106. Explain in detail about dialysis fluids and heamodialysis fluids.
107. Write a short note on the following.
    [a] Potassium carbonate [b] Sodium citrate and its formulation
108. Define metallic and trace elements and explain its biological role.
109. Describe the distribution and biological importance of copper.
110. Explain about the source, daily requirements, biological role and deficiency of zinc in the body.
111. Write a note on iodine compounds.

Questions carry 2 marks

Define following.

1. Gastric acidifier 2. Urinary acidifier 3. Systemic antacid 4. Cathartics 5. Purgatives 6. Laxatives
7. Emollient 8. Caustics 9. Astingent 10. Antimirobial 11. Protectives 12. Adsorbent 13. Dentifrices
14. Expectorant 15. Emetics 16. Antidote
17. What chemically calamine is, and why it is have pink color.

SUBJECT: PHARMACEUTICAL BIOCHEMISTRY II (BP-203)

Questions carrying 16 marks

1. Describe the metabolism of glucose 6-phosphate.
2. Give an account of glycogen metabolism.
3. Justify that citric acid cycle is the common metabolic pathway for oxidation of foodstuffs.
4. Discuss the synthesis of carbohydrate from non-carbohydrate source.
5. Describe the hexose monophosphate shunt and add a note on its significance.
6. Draw an explain glycolysis cycle in detail.
7. Discuss in detail kreb's cycle.
8. Define gluconeogenesis? Explain various reactions in gluconeogenesis.
9. Explain the glycogenesis cycle in detail.
10. Define glycogenolysis? Explain the cycle in detail.
11. Give an account of pentose phosphate pathway and give a note on its significance.
12. Describe in detail uronic acid pathway.
13. Describe the functions and metabolism of phospholipids.
14. Give an account of cholesterol biosynthesis. Add a note on significance of plasma cholesterol estimation.
15. Describe in detail the extra mitochondrial synthesis of fatty acids.
16. Write about the types, characteristics and metabolism of lipoproteins .Add a note on lipoproteins disorders.
17. Give an account of fatty acid oxidation.
18. Explain metabolism of phospholipids.
19. Describe the reactions in synthesis of urea.
20. Give an account of formation of specialized products from glycine.
21. Discuss in brief urea cycle.
22. Explain metabolism of sulphur containing amino acids.
23. Describe porphyrin synthesis in detail.
24. Explain metabolism of amino acids in detail.
25. Explain metabolism of ammonia in detail.
26. Write an account of high energy compounds.
27. Describe the components of electron transport chain and discuss oxidation of NADH.
28. Define oxidative phosphorylation. Discuss chemiosmotic hypothesis in detail.
29. Give an enzyme involved in biological oxidation.
30. Discuss about inhibition of ETC and oxidative phosphorylation.
31. Define oxidative phosphorylation its mechanism and their inhibitors.
32. Write briefly on the different laboratory investigations employed to asses liver function.
33. Discuss the biochemical parameters for the differential diagnosis of jaundice.
34. Give an account of the serum enzymes derived from liver and their importance in LFT.
35. Describe the renal function test.
36. Discuss the different laboratory investigations to evaluate gastric functions.
37. Explain formation of urine and give the clearance test.
38. Discuss in detail hormones of adrenal cortex and adrenal medulla.
39. Write a note on hypothalamic hormone and thyroid hormone.
40. Define hormone, classify them and write a note on pituitary hormones.
41. Explain in detail GIT hormones.
42. Define hormone and explain in detail hormones of gonads.
43. Write a note on anterior pituitary hormone.

44. Describe the role of second messenger in hormonal action
45. Explain in detail about mechanism of protein biosynthesis.
46. Explain in detail structure and role of DNA and RNA.
47. Describe DNA and RNA base nucleotide their role and different types of nucleotides.
48. Explain translation and transcription in detail.
49. Describe the structure of nitrogen bases present in nucleic acids.
50. Describe in detail synthesis of billirubin.

Questions carrying 8 marks

1. Draw glycolysis cycle and give its reaction.
2. Draw kreb's cycle and give its reaction.
3. Draw gluconeogenesis cycle and give its reaction.
4. Draw glycogenesis cycle and give its reaction.
5. Draw glycogenolysis cycle and give its reaction.
6. Explain disorders of galactose metabolism.
7. Draw the cycle and reaction of fatty acid oxidation.
8. Draw the cycle and reaction of synthesis fatty acid.
9. Explain cholesterol synthesis.
10. Explain synthesis of ecosanoids.
11. Explain fate of glycerol.
12. Explain ketogenesis.
13. Explain degradation of cholesterol.
14. Write a note on atherosclerosis in detail.
15. Discuss in detail transamination and deamination.
16. Explain synthesis of bile pigment.
17. Explain in detail nitrogen balance.
18. Explain porphyrias in detail.
19. Describe in detail amino acid pool.
20. Explain integration of urea cycle and TCA cycle.
21. Explain metabolism of cysteine and cystine.
22. Draw the electron transport chain and organization of respiratory chain.
23. Explain mechanism of oxidative phosphorylation.
24. Explain in detail enzymes involved in biological oxidation.
25. Write a note on high energy compounds.
26. Explain flavoprotiens and iron sulphur proteins and coenzyme Q.
27. Draw and explain mechanism of HCL secretion.
28. Draw and explain mechanism of kidney function.
29. Give functions and various tests for liver.
30. Discuss the pigment billirubin.
31. Explain various tests to asses gastric function.
32. Write a short note on jaundice.
33. Explain in detail pituitary hormone
34. Discuss in detail hypothalamic hormone
35. Describe adrenal medulla and various hormones related to it.
36. Explain in detail thyroid hormone.
37. Explain in detail GIT hormones
38. Discuss the mechanism of group I hormones and group II hormone.

39. Explain the growth hormone and prolactin hormone.
40. Write down storage release and transport of T_3 and T_4.
41. Explain in detail DNA.
42. Explain in detail RNA.
43. Write a note on nucleotide.
44. Explain tautomeric forms of purines and pyrimidines.
45. Explain the oxidative and non-oxidative deamination.

Questions carrying 4 marks

1. Write a short note on glycogenolysis.
2. Write a short note on UDPG.
3. Write a short note on glycogen storage disease.
4. Write a short note on conversion of pyruvate to acetyl co-A.
5. Write a short note on diseases related to carbohydrate metabolism.
6. Give an overview of kerb cycle.
7. Explain the three irreversible steps of glycolysis.
8. Write short note on fatty liver.
9. Describe ketone bodies.
10. Write short note on degradation of cholesterol.
11. Describe phospholipids.
12. Write short note on lipoproteins.
13. Explain why should fat be fuel reserve of the body.
14. Explain the disorders caused due to blockade of β oxidation.
15. Explain degradation of phospholipids.
16. Write a short note on amino acid pool.
17. Explain transmethylation.
18. Discuss transamination.
19. Write a short note on deamination.
20. Explain in detail ammonia toxicity.
21. Explain regulation of urea cycle.
22. Write about metabolic disorders of urea cycle.
23. Explain in detail phenylketouria.
24. Write a short note on p: o ratio.
25. Write a note on coenzyme Q.
26. Explain cytochrome.
27. Write a note on oxidative phosphorylation.
28. Explain redox potential.
29. Explain negative and positive ΔG.
30. Write a short note on ADP and ATP cycle.
31. Give reason why mitochondria is called power house of cell.
32. Explain in detail van den bergh reaction.
33. Write short note on galactose tolerance test.
34. Explain glomerular filtration test.
35. Write a short note on gastric function test.
36. Explain in detail bromosulphthalein test.
37. Write a note on creatinine clearness test.
38. Write a short note on hormones.
39. Explain thyroid hormone.

40. Write a note on hypothalamic hormone.
41. Explain cAMP the second messenger.
42. Write a note on posterior pituitary hormone.
43. Explain abnormalities of thyroid function.
44. Difference between dna and rna
45. Draw structure of dna and rna and explain them.
46. Explain silent features of protein biosynthesis.
47. Discuss structure of nucleotides.
48. Draw structure of adenine, guanine, thymine.
49. Describe chargaff's rule of DNA composition.

Questions carrying 2 marks

1. Define glycolysis and citric acid cycle.
2. Define gluconeogenesis and glycogenesis.
3. Define glycogenolysis and hexose monophosphate shunt.
4. Define uronic acid pathway and galactose metabolism.
5. Define fructose metabolism and amino acid sugar and mucopolysaccharide metabolism.
6. Give reason why glycogen is stored as a reserve fuel.
7. Explain von gierke's disease.
8. Define lactic academia and hyperuricemia.
9. Define β oxidation? Explain the different stages of fatty acid oxidation.
10. Give functions of cholesterol.
11. Define lipids and give its example.
12. Explain zellweger syndrome.
13. Explain refsum's disease.
14. Explain formation of malonyl CoA.
15. Define proteins and classify them.
16. Enlist the disorders of protein metabolism, and explain any one.
17. Define urea cycle, Enlist stages of urea cycle.
18. Define transamination and deamination.
19. Enlist errors of amino acid metabolism.
20. Define ammonoiotelic, uricotelic and ureotelic.
21. Define bioenergetic.
22. Define high energy compounds.
23. Draw structure of mitochondria depleting ETC.
24. Draw multiprotein complexes in electron transport chain.
25. Define biological oxidation.
26. Define entropy and enthalpy.
27. Classify high energy compounds.
28. Give various functions of liver.
29. Explain functions of kidney.
30. Discuss functions of GIT.
31. Define haemolytic and obstructive jaundice.
32. Define renal threshold substances and give its example.
33. Define and hormone and classify them.
34. Enlist various hormones and their functions.
35. Give the names of hormones of adrenal medulla and adrenal cortex.

36. Explain functions of androgens.
37. Explain functions of estrogens.
38. Draw structures of DNA and RNA .
39. Define protein and give steps of synthesis.
40. Define transcription and translation**.**

SUBJECT: HUMAN ANATOMY AND PHYSIOLOGY-II (BP-204)

8 marks questions

1. Describe the actions of main muscle involved in breathing
2. Compare and contrast the mechanical events occurring in inspiration and expiration.
3. Define the terms compliance, elasticity, airway resistance and tidal volume.
4. Describe the principle lung volumes and capacity.
5. Compare the processes of internal and external respiration, using the concept of diffusion of gases.
6. Describe O_2 and CO_2 transport in the blood.
7. Explain the main mechanism by which respiration is controlled.
8. Describe the respiration cycle.
9. Describe the summary of internal and external respiration.
10. How the partial pressure of O_2 and CO_2 responsible for diffusion of gases.
11. Justify increased or decreased pressure in thoracic cavity initiate the process of inspiration and expiration.
12. Describe the regulation of air and blood flow in the lung
13. Describe in detail the control of respiration.
14. Describe the structure and function of principle salivary glands.
15. Explain the role of saliva in digestion.
16. Discuss the digestive function of small intestine and its secretions.
17. Identify the different sections of the large intestine.
18. Describe the structure and function of large intestine
19. Describe the structure and function of rectum
20. Describe the structure and function of anal canal.
21. Differentiate between exocrine and endocrine pancreas
22. Describe in detail the anatomy and physiology of pancreas with the help of well labeled diagram.
23. Describe in detail the various function of liver
24. Explain the function of bile.
25. Explain the metabolism of carbohydrate for the formation of energy.
26. Describe the protein metabolism for the formation of energy.
27. Describe the metabolism of fat for the formation of energy.
28. Explain the formation of urine with the help of well labeled diagram.
29. Explain the functions of kidney with the help of well labeled diagram.
30. Explain the microscopic structure of the kidney.
31. Explain the anatomy of kidney.
32. Explain the physiology of kidney.
33. Explain the contraction process of skeletal muscle.
34. Explain neuromuscular junction.
35. Explain the structure and function of vagina.
36. Describe the location, structure and function of the uterus and the uterine tubes.
37. Discuss the process of ovulation and the hormones that control it.
38. Outline the changes that occur in the female at puberty, including the physiology of menstruation.
39. Describe the structure and function of female breast.
40. Describe the external genitalia and internal genitalia
41. Describe the gross structure of spinal cord.
42. Describe in detail the various functions of cerebrum.
43. Describe in detail the diencephalon.

44. Describe in detail the brain stem.
45. Describe the various cranial nerves with their origin and destination.
46. Explain the various sympathetic and parasympathetic nervous system.
47. Explain the various effects of autonomic stimulation of various system.

2 marks question

1. What is the accessory muscles involved in respiration?
2. What is elasticity
3. What is compliance
4. What is airway resistance
5. What is tidal volume
6. What is inspiratory reserve volume
7. What is inspiratory capacity
8. What is functional residual capacity
9. What is expiratory reserve volume
10. What is residual volume
11. What is vital volume
12. What is total lung capacity
13. What is alveolar ventilation?
14. What are the composition of inspired and expired air
15. What are the structures involved in controlled of respiration
16. Enlist the composition of saliva
17. Enlist the composition of saliva
18. Sketch a villus, labeling its component parts.
19. Represent diagrammatically the average volumes of fluid secreted, absorbed and eliminated from the gastrointestinal tract dialy.
20. Enlist the constituents of faeces.
21. Draw a well labeled diagram of pancreas in relation to duodenum and biliary tract.
22. Outline the important functions of liver.
23. Draw a well labeled diagram of liver showing anterior view.
24. Draw a well labeled diagram of liver showing posterior view.
25. What is portal fissure?
26. Draw the flow chart of scheme of blood flow through the liver.
27. Draw the well labeled diagram of liver lobule, showing a transverse section.
28. Give the composition of bile.
29. Draw a well labeled diagram of nephron and associated blood vessels.
30. Draw the anterior view of the kidney showing the areas of contact with associated structures.
31. Enlist the constituents of glomerular filtrate and glomerular capillaries.
32. Draw the well labeled diagram of longitudinal section of testis and deferent duct.
33. Draw the well labeled diagram of breast.
34. Draw a section of the ovary showing the stages of development of one ovarian follicle.
35. Draw the diagram of inferior surface of the brain showing the cranial nerves and associated structures.

4 marks question

1. Explain the factors that influence respiration.
2. What is the co-relation between exercise and respiration?
3. Explain the chemoreceptors mechanism for the control of respiration.
4. How the gases transport in blood stream.
5. Explain the muscles involved in the process of breathing.
6. Explain the contribution of diaphragm in the process of respiration.
7. Write a short note on inspiration of respiratory process.
8. Write a short note on expiration of respiratory process.
9. Explain the physiological variables that affect breathing.
10. Write in brief about lung volume and capacities.
11. Discuss the process of external respiration
12. Discuss the process of internal respiration
13. Explain the summary of external respiration and internal respiration.
14. How oxygen transport in blood stream
15. How carbon dioxide transport in blood stream
16. Write a short note respiratory rhythmicity center.
17. How gases are maintained in blood with the help of peripheral chemoreceptors.
18. How gases are maintained in blood with the help of central chemoreceptors.
19. Explain how respiratory centre control the rate of respiration.
20. Enlist the various disorders of upper respiratory tract.
21. Write in brief about common cold
22. Write in brief about sinusitis
23. Write in brief about tonsillitis
24. Write in brief about pharyngitis,laryngitis and tracheitis
25. Write in brief about diphtheria
26. Write in brief about allergic rhinitis
27. Write a short note on acute bronchitis
28. Write a short note on chronic bronchitis
29. Write in short about asthama.
30. Write in short about tuberculosis.
31. Explain the function of saliva.
32. Write in short about the introduction of salivary glands.
33. Explain the control of secretion of saliva.
34. Explain the chemical digestion of polysaccharides.
35. How polysaccharides chemically digest with the help of saliva.
36. Describe the location of stomach with reference to surrounding structures.
37. Explain the physiological significance of the layer of the stomach wall.
38. Discuss the digestive function of the stomach.
39. Explain the structure of stomach.
40. Explain the functions of stomach.
41. Explain the muscle fibers of stomach wall.
42. Explain the function of gastric juice
43. Explain the secretion phases of gastric juice.
44. Explain the three phases of secretion of gastric juice.
45. Describe the location of the small intestine with reference to surrounding structure
46. Explain how nutrients are absorbed in small intestine.

47. Explain the chemical digestion of small intestine associated with enterocytes.
48. How the intestinal secretions help in digestion of carbohydrate, protein and fats
49. Write in short about defecation.
50. Write in short about mass movement.
51. Explain the functions of large intestine
52. Explain the structure of large intestine.
53. Explain the anatomy of large intestine.
54. How the microbial activity occurs in large intestine.
55. Write in short about blood supply of large intestine.
56. How the arrangement of muscle fibers in the large intestine show it diagrammatically.
57. Describe the endocrine pancreas
58. Describe the exocrine pancreas
59. Write in short about the pancreas as a endocrine gland
60. Write in short about the pancreas as a exocrine gland
61. Describe the location of liver in the abdominal cavity
62. Explain the fate of bilirubin.
63. Write in short about the protein metabolism by liver.
64. Write in short about the carbohydrate metabolism by liver.
65. Write in short about the fat metabolism by liver.
66. Write a short note on first pass metabolism.
67. How fat digested with the help of bile.
68. Explain the elimination route of bilirubin.
69. Explain the fate of amino acids in the body.
70. Explain the sources, distribution and use of fats in the body.
71. Explain the co-relation of fatty acids and energy release.
72. Explain the fates of monosaccharides.
73. Explain the fates of fats.
74. Explain the co-relation of glycerol and energy release.
75. Explain the summary of the fates of the three main energy sources in the central metabolic pathways.
76. Justify that ketone bodies are toxic to the brain
77. Write in short about metabolism of fats.
78. Write in short about metabolism of protein.
79. Write in short about anaerobic metabolism of carbohydrate.
80. Write in short about aerobic metabolism of carbohydrate.
81. Explain the co-relation between carbohydrate and energy release.
82. Write a short note on amino acid pool in the body.
83. Explain the oxidation of glucose as a source of fuel.
84. What are the factors which affect the metabolic rates in the body
85. Explain the summary of the source, distribution and of use of glucose.
86. Write in short about peptic ulcer
87. Write in short about hepatitis.
88. Write in short about cirrhosis of liver.
89. Write in short about jaundice.
90. Identify the organs associated with the kidneys.
91. Outline the gross structure of the kidney.
92. Describe the structure of nephron.
93. Explain in short the process involved in the formation of urine.
94. Write a short note on autoregulation.

95. Write a short note on selective reabsorption of kidney tubules.
96. Explain the hormonal action which influences the selective reabsorption.
97. Write in short about tubular secretion.
98. Write in short about negative feedback regulation of secretion of antidiuretic hormone (ADH)
99. Write in short about negative feedback regulation of aldosterone secretion.
100. Write in short about negative feedback regulation of secretion of atrial natriuretic peptide (ANP)
101. Explain the summary of the three processes that form urine.
102. Write in short about filtration.
103. Write in short about renal calculi.
104. Write in short about external genitalia.
105. Write in short about internal genitalia.
106. Explain the structure of vagina.
107. Explain the physiology of vagina.
108. Explain the structure of uterus.
109. Explain the functions of uterus.
110. Explain the structure and function of uterine tubes.
111. Explain the structure and function of ovaries.
112. Explain the female reproductive hormones and target tissues.
113. Explain in short the female reproductive cycle.
114. Explain the summary of the stages of development of the ovum and the associated hormones.
115. Explain the structure of breast
116. Explain the function of breast.
117. Describe the structure of testis.
118. Describe the function of testis.
119. Outline the structure and function of spermatic cords.
120. Describe the secretions that pass into the spermatic fluid.
121. Explain the process of ejaculation.
122. List the main changes that occur during the puberty in the male.
123. Explain the structure and function of seminal vesicles.
124. Explain the structure and function of ejaculatory duct.
125. Explain the structure and function of prostate gland.
126. Write in short about urethra
127. Write in short about penis.
128. Write in short about ejaculation.
129. Explain the puberty in male.
130. What are the reproductive functions of oestrogen and progesterone?
131. Write in short about skeletal mulcle fibres.
132. Write in short about neuromuscular junction.
133. What are the factors that affect the skeletal muscle?
134. Explain the contraction process of skeletal muscle.
135. Write in short about hydrocele and male fertility.
136. What are neurons? Give the classification of nervous system.
137. What is nervous tissue? Write in brief about nerve cells.
138. Describe the blood supply to the brain
139. Name the lobes and principle sulci of the brain.
140. Outline the functions of the cerebrum
141. Identify the main sensory and motor areas of the cerebrum.

142. Outline the position and functions of the thalamus
143. Outline the position and functions of the hypothalamus.
144. Describe the position and functions of the pons
145. Describe the position and functions of the medulla oblongata
146. Describe the position and functions of the reticular activating system.
147. Describe the position and functions of the cerebellum.
148. Describe the function of cerebral tracts and basal ganglia.
149. What are the functional areas of the cerebral cortex, explain the motor areas in them.
150. Write in brief about the sensory areas of the cerebral cortex.
151. Write in brief about the motor areas of the cerebral cortex.
152. Explain the functional areas of the cerebral cortex with the help of suitable diagram.
153. Explain the various functions of the association areas.
154. Write a short note on diencephalon
155. Write a short note on thalamus.
156. Write a short note on hypothalamus.
157. Write a short note on pons.
158. Write a short note on medulla oblongata.
159. Write a short note on reticular formation.
160. Write a short note on cerebellum.
161. Explain the grey matter of spinal cord.
162. Explain the white matter of spinal cord.
163. Give the introduction of spinal cord state its functions.
164. Explain the motor nerve tract involve in the spinal cord.
165. Explain the sensory nerve tract in the spinal cord.
166. Explain the sensory nerve impulses their origins, routes and destination.
167. Write in short about stretch reflexes.
168. Write in short about spinal reflexes.
169. Write in short about name of tract, site in spinal cord and function of extrapyramidal upper motor neurons
170. Write in short about autonomic nervous system with their efferent, afferent and ganglionic neurone.
171. Write in short about sympathetic nervous system with their ganglionic neurons.
172. Write in short about parasympathetic nervous system with their ganglionic neurons.
173. Outline the various functions of autonomic nervous system.
174. Explain the effects of autonomic stimulation on cardiovascular system.
175. Explain the effects of autonomic stimulation on respiratory system.
176. Explain the effects of autonomic stimulation on digestive system.
177. Explain the effects of autonomic stimulation on urinary system.
178. Explain the effects of autonomic stimulation on eye.
179. Explain the effects of autonomic stimulation on skin.
180. Write a short note on visceral pain.
181. Write a short note on referred pain.

SUBJECT: PHARMACOGNOSY II (BP-205)

Questions carries 16 marks

1) Give a detailed account on various process involved in the preparation of crude drug for the commercial market.
2) Describe in detailed cultivation, collection, process of drying, garbling, preservation, storage & preparation of crude drug.
3) Describe in detailed cultivation with its merits & demerits.
4) Discuss in detailed about method of cultivation with its merits & demerits.
5) Describe in detail exogenous factor affecting cultivation of crude drug.
6) Describe endogenous factor affecting quality of crude drug.
7) Write in detailed about exogenous & endogenous factors affecting cultivation of crude drug.
8) Give method of preparation, properties and systematic pharmacognostic study of Cotton.
9) Describe in detailed introduction, isolation, identification test & therapeutic effect of carbohydrate.
10) Describe in detail occurrence, distribution, isolation, & pharmaceutical application of carbohydrate.
11) What are Tannins? Give complete pharmacognostical account of Catechu.
12) Give brief outline of occurrence, distribution, isolation, & pharmaceutical application of alkaloids.
13) Describe in detail introduction, isolation, identification test & therapeutic effect of terpenoid.
14) Write method of preparation, histological characters & identification test & uses of cotton.
15) Define Fibers. Give complete pharmacognostical account on Plant fibers.
16) Write in detail about pharmacognostic account on castor oil.
17) Give a detail account on fiber with brief explanation on any two fibre containing drug.
18) Describe about the preparation of crude drug for commercial market.
19) Explain in brief any two drug containing lipid.
20) Describe in detailed introduction, isolation, identification test & therapeutic effect of lipids.
21) Give brief outline of occurrence, distribution & pharmaceutical application of lipids.
22) Describe in detailed introduction, isolation, identification test & therapeutic effect of proteins.
23) Write occurrence, distribution, isolation, identification test, therapeutic effect & pharmaceutical application of glycosides.
24) Explain the morphological & histological characters of following crude drug- myrobalan, black catechu, turmeric & guar gum.
25) Write occurrence, distribution, isolation, identification test, therapeutic effect & pharmaceutical application of volatile oil.
26) Explain in detail about any two containing tannin.
27) Define Carbohydrates. Give classification properties of carbohydrates. Give complete pharmacognostic account of Agar and Pectin.
28) Write a note on volatile oil.
29) Discuss about occurrence, distribution, isolation, identification test, therapeutic effect & pharmaceutical application of tannin.
30) Define Lipids. Discuss classification and properties of Lipids. Give complete pharmacognostical account of olive oil and neem oil.

31) Write occurrence, distribution, isolation, identification test, therapeutic effect & pharmaceutical application of resin.
32) Discuss about antibiotics derived from carbohydrate metabolism-stretomycin.
33) Write a note on streptomycin & tetracycline.
34) Give a detailed account on antibiotics derived from amino acid metabolites.
35) Give a brief explanation on polypeptide antibiotics derived from acetate metabolism.
36) What are Resins? Give complete pharmacognostical account of Podophyllum and Myrobalan.
37) Write a note on polyenes antibiotics.
38) Give pharmacognostic account on greseofulvin.
39) Discuss in detail about the drugs obtained from microbial origin.
40) Define fibre and classify it & write in detail about cotton & jute.
41) Discuss about fibres & give a detail account on silk & wool.
42) How will you differentiate between fats, oils & waxes. Describe the chemical properties of fats & write the analysis parameter of fats & oils.
43) Write biological source and uses of…. following drugs.
    a) Isabgol.
    b) Pectin
    c) Tragacanth
    d) Honey
    e) Agar
44) Write isolation of any 4 from the following
    a) Protein b) terpenoid c) lipid d) carbohydrate e) resin
45) Solve any four from the following.
    i) Note on introduction & identification of fibres
    ii) Note on honey
    iii) Soil & soil fertility
    iv) Pest & pest control
    v) Note on terpenoids
46) Solve any four from the following.
    i) Note on gambier
    ii) Collection of crude drug
    iii) Classification & uses of fibres
    iv) Note on gelatin
    v) How temperature & altitude affect quality of crude drug
47) Solve any four from the following.
    i) Storage & preservation of crude drug
    ii) Merits & demerits of sexual & asexual method of cultivation
    iii) Note on podophyllum
    iv) Occurrence & distribution of resin
    v) Note on factors affecting cultivation
48) Solve any four from the following.
    i) Note on sexual method of cultivation
    ii) Note on drying of crude drug
    iii) Note on streptomycin
    iv) Note on hemp
    v) Note on lipid
49) Solve any four from the following.

i) Isolation of alkaloid
ii) Occurrence & pharmaceutical application of glycoside
iii) Identification test & therapeutic effect of tannin
iv) Therapeutic effect & isolation of protein
v) Occurrence & distribution of volatile oil

50) Solve any four from the following.
i) Merit & demerit of cultivation
ii) Identification test of tannin
iii) Note on penicillin
iv) Biological source & uses of silk & wool
v) Occurrence & distribution of gelatin

51) Write short note on any 3 of the following.
a) cotton b) volatile oil c) alkaloid d) glycoside e) agar

52) Write synonym, biological source, chemical constituent, uses of any four from the following.
a) Isapgul b) guar gum c) honey d) linseed oil e) jute

53) Write synonym, biological source, chemical constituent, uses of any four from the following.
a) Myrobalam b) wool c) agar d) chaulmoogra oil e) neem oil

54) Write pharmacognostic account on any 2 of the following.
a) Honey b) castor oil c) asafoetida d) turmeric

55) Write short note on any 3 of the following.
a) Tannin b) volatile oil c) asafoetida d) cotton e) griseofulvin

56) Write short note on any four of the following.
a) Resin b) chaulmoogra oil c) podophyllum d) silk e) penicillin

57) Write synonym, biological source, chemical constituent, uses of any four from the following.
a) Agar b) ispaghula c) myrobalam d) silk e) olive oil

58) Write synonym, biological source, chemical constituent, uses of any four from the following.
a) Agar b) pectin c) black catechu d) podophyllum e) balsam of tolu

59) Write short note on any four of the following.
a) Tannin b) glycoside c) alkaloids d) volatile oil e) jute

60) Write synonym, biological source, chemical constituent, uses of any four from the following.
a) Cotton b) jute c) hemp d) silk e) wool

61) Write synonym, biological source, chemical constituent, uses of any four from the following.
a) Balsam of tolu b) turmeric c) asafoetida d) podophyllum e) gambier

62) Write synonym, biological source, chemical constituent, uses of any four from the following.
a) Starch b) pectin c) isapgula d) guar gum e) gelatin

63) Write synonym, biological source, chemical constituent, uses of any four from the following.
a) Castor oil b) olive oil c) neem oil d) chaulmoogra oil e) linseed oil

Questions carries 8 marks

64) Write in detail about cultivation & collection of crude drug.

65) Write in detail about cultivation & drying of crude drug.
66) Give history, method of preparation, identification test & uses of alginate.
67) Note on merits & demerits of cultivation.
68) Note on merits & demerits of method of cultivation.
69) Write merits & demerits of sexual method of cultivation.
70) Give the isolation & identification of volatile oil.
71) Write short note on Synthetic fibers.
72) Write synonym, biological source, description, chemical constituent, standards, identification test & uses of gelatin.
73) Discuss method of preparation, description, standards & identification test of tolu balsam.
74) Write synonym, biological source, geographical source, solubility, chemical constituent, uses & adulterants of balsam of tolu.
75) Discuss cultivation, collection, chemical constituent, chemical test & uses of podophyllum.
76) Write synonym, biological source, description, geographical source, identification test, uses & adulterants of asafoetida.
77) Give a detail account on cultivation, collection & macroscopic characteristics of turmeric.
78) Write synonym, biological source, geographical source, chemical constituent, standards, chemical test, uses & substitute of turmeric
79) Write merits & demerits of asexual method of cultivation.
80) Define Tannins. Discuss Turmeric, Gambier, and Myrobalan.
81) Write geographical source, method of preparation, description & standards of agar.
82) Discuss in detail about garbling, drying, storage & preservation of crude drug.
83) Describe in brief about description, standards, geographical source & method of preparation.
84) Define resins. Give method of isolation and chemical test for resins**.**
85) Write official source & method of collection of black catechu.
86) Write commercial & pharmaceutical importance of black catechu, mention its chemical test.
87) Write pharmaceutical application & identification test of alkaloid.
88) Write description, standards chemical constituent, identification test & uses of starch.
89) Write biological source, morphological characters & uses of myrobalan.
90) Explain in brief about the method of preparation of olive oil & linseed oil with its macroscopy.
91) Describe briefly the chemistry & properties of tannin. How are these are identified on the basis of chemical test.
92) Write a note on alkaloid.
93) Write botanical source, method of preparation, organoleptic characters, chemical constituent & uses of olive oil.
94) Write a short note on honey.
95) What is the official source of isapgula seeds? Describe the morphological characters of isapgula seeds. Mention its pharmaceutical importance.
96) Write geographical source, description, standards & chemical constituent of castor oil.
97) Write a note on terpenoid.
98) Write occurrence, distribution & pharmaceutical application of terpenoid.
99) Write synonymn, biological source, standards, geographical source, standards, chemical constituent & uses of neem oil.
100) Define terpenoid & classify it with suitable examples.
101) Write a note on classification, chemical test for determination & uses of fibre.

102) Describe in brief description, standards, identification test & uses of pectin.
103) Write a note on chaulmoogra oil.
104) What are terpenoid? Give their distribution & pharmaceutical importance.
105) Write description, standards, chemical constituent, chemical test & uses of olive oil.
106) Write a note on linseed oil.
107) Give introduction, classification, chemical test & uses of fibres.
108) What are alkaloids? How are these classified.
109) Write a note on olive oil.
110) Write synonymn, biological source, method of preparation, chemical constituent, uses , storage & dose of chaulmoogra oil.
111) What is lipid? How they classified.
112) How alkaloids are isolated from natural source.
113) Write synonym, biological source, description, chemical constituent, standards, identification test & uses of gelatin
114) What are true, pseudo & proto alkaloid ?
115) Write a note on absorble & nonabsorble gelatin preparation.
116) Describe in brief synonymn, biological source, geographical source & method of preparation of linseed oil.
117) What is glycoside? How they classified.
118) Write pharmaceutical application of any 4 from the following.
a) Carbohydrate b) lipid c) resin d) protein e) alkaloid
119) Write a note on neem oil.
120) Write biological source & uses of any 4 of the following.
a) Myrobalan b) isabgol c) honey d) hemp e) wool
121) Write chemical tests of following drugs.
a) Silk b) black catechu c) turmeric d) asafoetida
122) Write biological source, chemical constituent & uses of any 2 of the following.
a) Asafoetida b) silk c) cotton
123) Write identification test of any 4 from the following.
a) Castor oil b) olive oil c) neem oil d) chaulmoogra oil e) linseed oil
124) Write importance of drying, preservation, storage & garbling of crude drug.
125) Give a general method of isolation of alkaloid & volatile oil.
126) Define protein & classify it with suitable examples.
127) Write a note on carbohydrate & fibres.
128) Write distribution & therapeutic effect of carbohydrate.
129) Write a note on lipid.
130) Discuss about occurrence & pharmaceutical application of lipid.
131) Write in detail pharmacognostic account of agar.
132) Define lipids & classify it with suitable examples.
133) Write in detail pharmacognostic account of isapgul.
134) Define tannin & classify it with suitable examples.
135) Write in detail pharmacognostic account of agar.
136) Write a note on resin.
137) Define alkaloid & classify it with suitable examples.
138) Write in detail pharmacognostic account of pectin.
139) What are tannin? How are these classified? Give suitable examples of each.
140) What are resin? How are this formed in plants? Give their classification.

141) Define the term resin, oleo –resin, oleo-gum-resin & balsams with suitable examples.
142) Describe linseed oil under a complete pharmacognostic scheme.
143) Write informative notes on any 2 from the following.
a) Simple lipid b) compound lipid c) derived lipid
144) Describe in brief introduction, isolation & therapeutic effect of tannin.
145) Describe biological source, chemical constituent, uses & chemical test of castor oil, chaulmoogra oil, neem oil.
146) Write in detail pharmacognostic account of guar gum.
147) Define carbohydrate & classify it with suitable examples.
148) Write in detail pharmacognostic account of alginate.
149) Discuss on pharmacognostic account of honey.
150) How the drugs containing carbohydrate are classified? Give the pharmaceutical importance of carbohydrate.
151) Give brief outline of occurrence, distribution & pharmaceutical application of protein.
152) Write a note on protein.
153) What is carbohydrate? How they classified?
154) Write the official source, characters, chemical constituent & chemical test of guar gum.
155) Give pharmacognostic account on myrobalan.
156) Write the names of various commercial starches. How are they prepared for pharmaceutical use?
157) Define resin & classify it with suitable examples.
158) Write a short note on honey.
159) Solve any 4 from the following.
i) Goldbeater's skin test of tannin
ii) Stas otto method of alkaloid
iii) Keller-killani test of glycoside
iv) Borntrager's test of glycoside
v) Dragendorff's test of alkaloid
160) Describe in brief introduction, isolation & pharmaceutical application of resin.
161) Discuss distribution & identification test of protein.
162) Define glycoside & classify it with suitable examples.
163) Describe in brief introduction, isolation & therapeutic effect of glycoside.
164) Define volatile oil & classify it with suitable examples.
165) Describe in brief introduction, isolation & therapeutic effect of volatile oil.
166) Write pharmacognostic account on asafoetida.
167) Give pharmacognostic account on turmeric.
168) Write a note on griseofulvin.
169) Write a short note on fibres.
170) Write pharmacognostic account on balsam of tolu.
171) Give a detail account on tetracycline & penicillin.
172) Give pharmacognostic account on podophyllum.
173) Write a note on gambier.
174) Write pharmacognostic account on balsam of tolu.
175) Write synonym, biological source, chemical constituent, uses of any 2 from the following.
a) Black catechu b) myrobalan c) gambier
176) Write chemical test of any 4 from the following.
a) Pectin b) honey c) agar d) gelatin e) starch

177) Write identification test of any 4 from the following.
a) Gelatin b) isapgul c) guargum d) alginate e) starch
178) Write chemical test of following drugs.
a) Honey b) guar gum c) pectin d) starch
179) Write biological source & uses of any 4 from the following.
a) Agar b) alginate c) pectin d) starch e) honey

Questions carries 6 Marks

179. Write macroscopic characters, substitutess & adulterants of isapgol seed.
180. Write the pharmaceutical application of volatile oil & terpenoid.
181. Write chemical constituent, identification test & uses of guar gum.
182. Highlights the role of soil and fertilizers in cultivation of medicinal plants.
183. Write synonymn, biological source, geographical source & method of preparation of olive oil.
184. What are Lipids? Classify them and enlist analytical parameters of lipids.
185. What are different types of drying for crude drug.
186. Write the chemical test of pectin & starch with their preparation.
187. Write geographical source, description, standards & uses of chaulmoogra oil.
188. Define and differentiate between natural and synthetic fibers.
189. Write chemical constituent, uses & cautions of linseed oil.
190. Discuss methods of drying and importance of storage of crude drugs.
191. Define and differentiate between cultivation and collection of medicinal plants.
192. Explain the method of preparation of medicinal castor oil with its uses.
193. Give macroscopic & microscopic characters of podophyllum.
194. Note on method of preparation, description & uses of wool.
195. Write synonymn, biological source, geographical source, characteristics & uses of hemp.
196. Note on method of preparation, description, solubility, chemical test of silk.
197. Discuss about collection & method of preparation of asafoetida.
198. Enlist the drug containing containing carbohydrate, lipid, tannin & resin.
199. Write description, standards, caution & uses of linseed oil.
200. Classification and chemical test of Tannins.
201. Write synonymn, biological source, geographical source, description & chemical constituent of gambir.
202. Define tannin & write properties & classification of tannin.
203. Explain in detail about cultivation, collection, chemical test & uses of gambir.
204. What is hydrolysable, condensed & pseudo tannin.
205. Write synonymn, biological source, history & method of manufacturing of black catechu.
206. Write synonymn, biological source, geografhical source, cultivation & macroscopic charaters of myrobalan.

Questions carries 4 marks:

207. Write a note on sexual method of cultivation.
208. Note on harvesting of crude drug.
209. Write a note on asexual method of cultivation.

210. Write identification test & uses of agar.
211. Note on preservation of crude drug.
212. Write a note on storage & preservation of crude drug for commercial market.
213. Explain different types of dryer which are used for artificial drying of crude drug.
214. Write isolation of volatile oil.
215. How to maintain the good quality of drug.
216. Write geographical source & description of alginate.
217. What is pectin? Give method of manufacturing of pectin.
218. Note on cultivation & collection of isapgol.
219. Write chemical constituent & uses of honey.
220. Write geographical source, description & standards of honey.
221. Write microscopical characters of starch.
222. Note on preparation of starch.
223. Write composition of castor seed.
224. Write preparation of medicinal castor oil.
225. Write pharmaceutical application of carbohydrate.
226. Note on microscopic characters of turmeric.
227. Define fibres & give its classification.
228. Write synonym, biological source, chemical constituent & uses of gelatin.
229. Write therapeutic effect of protein.
230. Write identification test & uses of castor oil.
231. Short note on penicillin.
232. Write general method of isolation of alkaloids.
233. Write pharmaceutical application of glycosides.
234. Write identification test of volatile ofil.
235. Write identification test of tannin.
236. Write chemical constituent & uses of myrobalan.
237. Write general method of isolation of volatile oil.
238. How the resins are tested chemically.
239. Write therapeutic effect of protein.
240. Write isolation of tannin.
241. Write identification test of resin.
242. Write chemical test & uses of fibres.
243. Write chemical constituent of any 4 from the following.
244. Alginate b) pectin c) podophyllum c) black catechu e) balsam of tolu
245. Write definition of any 4 from the following.
246. fibre b) protein c) carbohydrate d) terpenoid e) lipid
247. Write uses of any 4 from the following.
248. Cotton b) isapgul c) jute d) pectin e) wool
249. Write therapeutic effect of any 4 from the following.
250. Agar b) starch c) turmeric d) chaulmoogra oil e) honey
251. Write biological source of any 4 from the following.
252. Guar gum b) neem oil c) gambier d) asafoetida e) gelatin
253. Write definition of any 4 from the following.
254. Alkaloid b) glycoside c) volatile oil d) resin e) tannin

Questions carries 2 marks

255. Write chemical test for isapgol.
256. Give uses of isapgol.
257. Enlist exogenous & endogenous factors affecting crude drug.
258. Note on preparation of honey for market.
259. Note on goldbeater skin test of tannin.
260. Note on cultivation & collection of gambier.
261. Give method of manufacturing of black catechu.
262. Write identification test of tannin.
263. Enlist factors affecting cultivation of crude drug.
264. Note on solubility of gelatin.
265. Note on preparation of gelatin.
266. What is penicillin.

SUBJECT: STATASTICS AND COMPUTER APPLICATIONS IN PHARMACY (BP-206)

Question for 2 marks

1. Explain what you mean by statistics.
2. What is statistical data?
3. Define frequency and class limit.
4. Define Grouped data and Individual data.
5. Define Class frequency and Class interval.
6. Types of variables.
7. What are the merits of using sampling methods?
8. What are the advantages of sampling?
9. What is simple random sampling?
10. Explain various method of sampling.
11. What is systematic sampling?
12. What type of decision can be taken with the help of statistical inference ?
13. Give a testing of hypothesis procedure?
14. Explain the terms sampling distribution and standard error.
15. What is Bernoulli trial?
16. Explain the binomial probability distribution.
17. Explain Normal probability distribution.
18. What is Correlation?
19. What are the different methods of studying correlation?
20. Define Spearman's Rank Correlation. When it can be used?
21. What is regression analysis?
22. Explain the concept of regression.
23. What are the properties of regression coefficient and lines?

24. What are the difference methods to find regression lines?
25. What is analysis of Variance?
26. Write a short note on analysis of variance.
27. What is the procedure for ANOVA?
28. The mean weight of a student in a group of six students is 119.The individual weights of five of them are 115,109,129,117,114 etc.what is the weight of the sixth student?
29. Following are the marks obtained by a batch of 10 students in a certain class test 63,64,62,32,30,60,47,46,35,28 calculate median marks?
30. Define the term sample space and event
31. Define hypothesis and Null hypothesis
32. What is central processing unit?
33. Enlist various fields in pharmacy where computers find potential applications.
34. Write a note on digital computer.

Question for 4 marks

1. State the characteristics of a computer.
2. Give the classification of computer.
3. Draw the block diagram of a computer and explain the same.
4. What is a flow chart? Explain the flow charting symbols. Give one example of flow-chart.
5. Explain the memory layout of CPU.
6. Define any two:- i) BIT ii) DATA iii) Hardware
7. If the coefficient of regressions bxy and byx are 0.9 and 0.4 respectively, find the Pearson's correlation coefficient.
8. Give the generation of computers with special features of each.
9. What are input devices? Explain the working of any two units.
10. Differentiate between RAM, ROM, PROM AND EPROM.
11. Write a short note on floppy disk with diagram.
12. Differentiate between internal and external DOS commands with examples .
13. What is correlation? Define and discuss the significance of Karl Pearson's coefficient of correlation.
14. In a box 5 tablets of Crocin, 7 Aspirin and 10 Desprine are kept If the tablet is taken randomly find the probability that, i) It is Aspirin, ii) It is not Crocin
15. Write a note on printers used with computer system.
16. What is scatter diagram? How do you interpret a scatter diagram?
17. Given that two lines of regression as

8x-10y+66=0 and 40x-18y-214=0 find the average of x and y and correlation coefficient between x and y.

18. Differentiate between impact printers and non –impact printers. Give one examples of each.

19. Define statistics. State the methods for collection of primary data.

20. Describe in brief about the evolution of computer.

21. . Define :- i) Histogram ii Frequency polygon and iii) Cumulative frequency polygon.

22. Calculate the average

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
No of students	0	2	1	7	13	13	9	2	1

23. Calculate the median

Class	0-20	21-30	31-40	41-50	51-60	61-70	71-80
Frequency	42	36	120	84	48	36	31

24. Calculate mean deviations about mean

X	10	11	12	13
F	3	12	18	12

25. In a vocal music contest, two judges rank 10 competition in the following order :

Ranking A	6	4	3	1	7	9	8	10	5	2
Ranking B	4	1	6	7	8	10	7	3	2	5

What is coefficient of rank correlation ?

26**.** Find median from the following data.

Class limit	0-30	30-60	60-90	90-120	120-150	150-180
Frequency	8	13	22	27	18	7

27. Calculate mode for the following data.

Class limit	0-30	30-60	60-90	90-120	120-150	150-180
Frequency	8	13	22	27	18	7

28. Find the median.

X	0	1	2	3	4	5
F	42	55	32	22	15	6

29. Eight coins are thrown simultaneously. Show that the probability of obtaining at least 6 heads ?

30. 12% of the syringes produced by a machine are defective. What is the probability that out of a randam maple of 20 syrings produced by the machine 5 are defective ?

31. In a test run 20% of the tablets produced by a machine are defective. Deduce the probability distribution of the number of detectives in a sample of 5 tablets chosen at random.

32. Three perfect coins are tossed together. What is the probability of getting at least one head ?

33. A bag contains 6 red and 8 blck balls. If two balls are drawn at randam one by one, find the probability of getting.

i) both the balls of different colour

ii) both the balls of same colour.

34. What are the different methods of studying correlation?

35. Define Spearman's Rank Correlation. When it can be used?

36. Explain advantages of fourth generation computer over third generation computer.

37. What are the different types of computers.

38. What do you mean by 8-bit,16-bit and 32-bit computer.

39. Explain different parts of CPU .

40. Draw a diagram of Floppy disk.

41. Enlist and elaborate on different output devices.

42. Describe in details different types of optimal scanners.

43. Write a short note on line printer.

44. Write a short on floppy disk.

Question for 6 marks

1. Explain the concept of correlation. Define co-efficient of correlation.

2. Find out coefficient of correlation from the following data and comment.

x	300	350	400	450	500	550	600
y	800	900	1000	1100	1200	1300	1400

3. How random sampling is close to the theory of probability? Explain in this connection Law of statistical regularity and Law of intertia of large numbers.

4. If two regression coefficients are 0.7and 0.9, what would be the value of coefficient of correlation.

5. Write an account of application of Computer in Pharmacy.

6. Explain regression of X on Y and Y on X. Also explain the standard error of estimation.

7. Prepare a program in BASIC for determining roots of a quadratic equation.

8. Differentiate between compiler and interpreter.

9. A medicine box contains 5 Aspirin, 8 Ibuprofen and 7 Paracetamol tablets. If one tablet is taken randombly, find the probability that i) It is Paracetamol ii) It is not Ibuprofen

10. What is meant by computer software? Describe the types of softwares.

11. What is an operating system? Give the function of an operating system and describe DOS.

12. What is a flow chart? Describe the use of flow charting symbols

13. Explain the Binomial probability distribution.

14. Given the two lines of regression equation. X-4Y=5 and X-16Y= -64, find the average of X and correlation coefficient between Xand Y.

15. Describe the working of a central processing unit of a computer. Explain the instruction execution in a control unit, functions of memory unit and arithmetical logical unit (ALU).

16. Describe the use of computer in drug design.

17. Describe the classification of computers according to the size of memory.

18. What is normal probability distribution? Describe the characteristic of normal sdistribution.

19. Describe the line of regression. Explain the methods to find regression lines and properties of regression coefficients and lines.

20. Classification of digital computers.

21. Describe the collection of data.

22. Give the generation of computers with special features of each.

23. Describe the normal distribution.

24. Write the expressions for mean, mode and median for a grouped data.

25. Calculate the mode and median

Monthly wage	20-30	30-40	40-50	50-60	60-70	70-80	80-90
No. of employees	28	32	45	60	56	40	20

26. Calculate standard deviations from the following data

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of students	5	7	14	12	9	6	2

27. Find mean and Standard deviation.

Age below	10	20	30	40	50	60	70	80
No. of person	15	30	53	75	100	110	115	125

28. Calculate mean and Standard deviation.

Monthly pension in Rs.	40	50	60	70	80	100
No. of person	3	6	4	9	3	5

29. Calculate the coefficient of variation.

Age	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of person	15	15	25	22	25	10	5	0

30. The following is the record of goals scored by a team. Calculate C.V.

No of goals scored	0	1	2	3	4
No of matches	1	9	7	5	3

31. Calculate the standard deviation and coefficient of variations for the frequency distribution of marks of 100 candidates given below.

Marks	0-20	20-40	40-60	60-80	80-100
Frequency	5	12	32	40	11

32. The following is an age distribution of persons selected from certain town. Calculate mean deviation from mean.

Age in years	0-10	10-20	20-30	30-40	40-50	50-60	60-704
No .of persons	4	6	10	20	10	6	4

33. The following data collected to the ages of a group of government employees. Calculate mean of the series and standard deviation.

Age	20-25	25-30	30-35	35-40	40-45	45-50	50-55
No. of employees	170	110	80	45	40	30	35

34. The ranks obtained by 10 individuals before and after the training of some course are given below. Compute Spearman's correlation coefficient.

Individual	1	2	3	4	5	6	7	8	9	10
Ranks before training	1	6	3	9	5	7	10	8	2	4
Ranks after training	6	8	3	7	2	1	5	9	4	10

35. Psychological tests of intelligence and arithmetical ability were applied to 10 candidates. Results are given below.

(x) Intelligence ratio	90	95	115	96	85	110	89	98	97	93
(y) Arithmetic ratio	95	90	110	100	85	105	94	106	111	93

Compute spearman's rank correlation coefficient between X and Y.

36.Calculate Spearmans rank correlation between the following marks given by two judges in series of one act plays in a drama competition.

Marks by judge A	81	72	60	33	29	11	56	42
Marks by judge B	75	56	42	15	30	20	60	80

37.Calculate the average

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
No of students	0	2	2	7	13	13	9	2	1

38.Find mean and median

Class limits	0-10	10-20	20-30	30-40	40-50	50-60
No. of students	12	18	27	20	17	6

39.Find the mean and mode.

Classes	10-25	25-40	40-55	55-70	70-85	85-100
No. of students	6	50	44	26	3	1

40. Given the following data:

	X	Y
A.M.	36	85
S.D.	11	8

Obtain two lines of regression and estimate value of X when Y = 75.

41. For a certain X and Y series which are correlated the two lines of regression are

$5x - 6y + 90 = 0$ and $15x - 8y - 130 = 0$. Find which is that of Y on X which is that of X on Y. Find the means of the two series and the coefficient of correlation.

Question for 8 marks

1. Explain any two of the following :-

i) Normal probability distribution

ii) Coefficient of correlation and its significance

iii) Standard deviation and its merits.

2. Define the following terms and give one examples of each :-

i) Equiprobable sample space

ii) Complementary event

iii) Random variable

3. Write a short note on:

i) Computer application in drug design.

ii) Computer application in Crude drug identification.

4. What is an operating system ? State the types and functions of an operating system. Give

examples of two operating system.

5. From the following cumulative frequency table find the mean, median and mode.

Size below	5	11	15	20	25	30	35
Frequency	1	3	13	17	27	36	38

6. From the following data calculate the mean.

Class limits	0-30	30-60	60-90	90-120	120-150	150-180
Frequency	8	13	22	27	18	7

7. Calculate coefficient of variation from the following data:

X	4	8	12	16	20	24	28
F	3	13	22	37	18	12	2

8. Find coefficient of variation for the following grouped data.

Class limits	0-50	50-100	100-150	150-200	200-250	250-300
Frequency	7	16	23	14	8	2

9. Calculate the mean and the standard deviation of the following data.

Class interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	1	19	30	80	70	28	10	4

10. The following data collected to the ages of a group of government employees. Calculate mean of the series and standard deviation.

Age	20-25	25-30	30-35	35-40	40-45	45-50	50-55
No. of employees	170	110	80	45	40	30	35

11. Calculate the coefficient of correlation

X	12	9	8	10	11	13	7
Y	14	8	6	9	11	12	3

12. Calculate the coefficient of correlation

X	2	4	5	6	8	11
Y	18	12	10	8	7	5

13. Calculate correlation coefficient between X and Y from the following data.

X	38	41	30	42	47
Y	55	60	45	50	50

14. Calculate correlation coefficient between X and Y from the following data.

X	36	39	28	40	45
Y	53	58	43	48	48

15. Computer correlation coefficient between supply and price of commodity using following data :

Supply	152	158	169	182	160	166	182
Price	198	178	167	152	180	170	162

16. Following are the values of import of raw material and export of finished products in suitable units. Calculate coefficient of correlation.

Export	10	11	14	14	20	22	16	12
Import	12	14	15	16	21	26	21	15

17. For certain bi-variant data the two lines of regression are

$5x - 6y + 90 = 0$

and $15x - 8y - 130 = 0$

Find which line is Y on X and which is X on Y. Find means of X and Y and correlation Coefficient ' r'.

18. Given variance of X = 9

Regression equations $8x - 10y + 66 = 0$

$40x - 18y - 214 = 0$

Find:

i) Average value of X and Y.
ii) Correlation coefficient between X and Y.
iii) Standard deviation of Y.

19. Two lines of regression are given as

$6x + 10y - 119 = 0$

And $-30x + 45y + 180 = 0$

The variance of Y is 4. Find

1) The mean value of X and Y. 2) The coefficient of correlation between X and Y.

3) The variance of X.

B. PHARM. 2ND SEMESTER IV

SUBJECT: PHYSICAL PHARMACY –II (BP-401)

16 Marks Question

1. Discuss classification of colloids. Add a note on properties of colloids.
2. Define surface and interfacial tensions. Discuss various techniques of measurement of surface and interfacial tension.
3. State the various factors which influence a rate of reaction and elaborate accelerated stability techniques?
4. Write short notes on(any four)-
    a) Creaming
    b) Cracking
    c) Phase inversion
    d) Emulsifying agent
    e) Preservation of emulsion.
    f) Assessment of emulsion shelf life
5. Using Stokes law, state the factors affecting rate of creaming of an emulsion?
6. Write the methods to ascertain the order of a reaction.
7. Compare first and second order reactions with respect to the rates and explain the mechanism for their behavior.
8. Describe the various types of emulsion and methods used to detect them.
9. Describe in details about preparation of emulsion.
10. Solve any four of the following-
    a. Association colloids and solubility of drugs.
    b. Electrical double layer.
    c. Zero order reaction.
    d. Interfacial tension is generally less than surface tension.
    e. Factors influencing the solubility of weak electrolyte.
    f. Define wetting. Write application of wetting in Pharmacy.
    g. What are multiple emulsions?
11. Describe in details about assessment of shelf life of emulsion.
12. Describe the effect of temperature on rate of reaction. Explain the accelerated stability testing of pharmaceuticals.
13. Explain the mechanism of solute solvent interaction. Derive Scatchard- Hildebrand equation for solubilization of solid in non ideal solution.
14. What are the various methods of preparing Lyophobic colloids? How the molecular weight of colloids is calculated by viscosity measurement?
15. Explain various types of order of reactions. Write note on accelerated stability studies and shelf life of a product.
16. Write short notes on any four of the following-
    a. DLVO theory
    b. Spreading coefficient
    c. Electrical properties of colloids
    d. Langmuir’s adsorption isotherm
    e. Optical properties of colloids.
    f. Solvent solute interactions
17. Define ideal solutions and real solutions. Discuss the effect of pressure, temperature, salting out phenomenon and chemical reaction on solubility of gases in liquids.

18. Compare the three classes of colloids. Elaborate the various mechanisms for stability of colloidal systems.
19. What are complex order reactions? With suitable examples give the kinetics of reversible and parallel reactions.
20. Describe in brief about classification of colloids.
21. Explain effect of different factors in reaction rate.
22. Describe in brief about accelerated stability studies.
23. What are complex reactions? Describe with suitable examples the kinetics of parallel and series reaction.
24. What is zero order reaction? How will you calculate half life of any chemical process following zero order kinetics? Which drugs do follow zero order in its absorption in the body?
25. Define rate and order of reaction with suitable examples. Elaborate the kinetics of zero, first and second order reactions.
26. What are colloids? Classify properties of colloids and explain the properties by which molecular weight of polymer can be determined.
27. Discuss the physical instability of an emulsion. Describe the assessment of shelf life of an emulsion.
28. What are colloids? How they are classified? Elaborate the use of viscosity measurement and sedimentation property for determination of molecular weight of colloidal material.
29. Describe in brief about wetting and detergency phenomenon.
30. Give reasons or explain why (any four)
    a. Solubility of gas in a liquid depends on various factors.
    b. Viscosity is used as a tool to determine emulsion shelf life.
    c. Addition of electrolyte, decrease the zeta potential.
    d. Interfacial tension is less than surface tension.
    e. Half life of a drug following first order reaction kinetics.
31. Explain any four of following-
    a. Classification of colloids
    b. Spreading coefficient
    c. Phase rule and phase equilibria
    d. Zeta potential
    e. Emulsion type and its detection
    f. Influence of solvent on solubility of weak electrolytes.
    g. Effect of electrolyte on colloids.
    h. Using Stoke's law, state the factors affecting rate of creaming of an emulsion.
32. What are various methods of preparing Lyophobic colloids? How molecular weight of colloids is calculated by viscosity measurement?
33. Explain methods for measurement of surface and interfacial tension (any four)
    a. Capillary rise method
    b. Drop weight or drop volume method
    c. Du Nouy ring method
    d. Wilhelmy plate method
34. How emulsions are prepared? Give its applications in Pharmacy. Discuss various theories of emulsification.
35. Discuss the following factors affecting rate of reaction-
    i) Temperature
    ii) Light
    iii) Ionic strength
    iv) Catalysis
36. Differentiate between the following-

a) o/w and w/o emulsion
b) creaming and cracking
c) emulsion and suspension
d) Phase volume ratio and phase inversion.

37. Discuss following properties of colloids.
    i. Light scattering
    ii. Electrophoresis
    iii. Osmotic pressure
    iv. Electro osmosis

10 Marks Question

1. Define following term any ten.
    a) Solubility
    b) Polar solvent
    c) Non ideal solution.
    d) Weak electrolytes.
    e) Cohesion
    f) Colloids
    g) Order of reaction
    h) Stability
    i) Shelf life
    j) Half life
    k) Emulsion
    l) Rate of reaction
    m) Order of reaction
    n) Molecularity of reaction
2. Explain the various types of adsorption isotherms.
3. Define surface tension and interfacial tension. How is it measured by drop weight method and drop count method?
4. Discuss origin of charge and electrical double layer. How will you measured zeta potential.
5. Describe in brief about phase rule.
6. Describe about distribution of solute between two phases .
7. Explain in brief about distribution coefficient.
8. What are the various factors which affect adsorption process? Describe in detail various adsorption isotherms.
9. Define term emulsifying agent. Write the qualities of an ideal emulsifying agent. How will you classify the emulsifying agents?
10. Define emulsion. Discuss in brief about formulation of emulsion.
11. Define emulsion. State the different types of emulsions and also how will you distinguish them.
12. Discuss the origin of charge and electrical double layer. How will you measure zeta potential?
13. Describe various factors which improve stability in an emulsion. How emulsion shelf life is assessed?
14. Define adsorption isotherm. Draw various types of adsorption isotherms and explain their behavior.
15. Write a short notes on
    a. Lyophillic colloids
    b. Lyophobic colloids
    c. Association colloids
16. Discuss the optical properties of colloids.
17. Describe the kinetics properties of colloids.

18. Describe methods for the preparation of Lyophobic colloids.
19. Classify different types of colloids giving their salient features andexamples.
20. Discuss the distinguishing feature and properties of different types of colloids.
21. Discuss the factors which improve the physical stability of emulsions.
22. Explain in brief about formulation of emulsion.
23. Describe physical stability of emulsion.
24. Explain theories of emulsification.
25. Explain kinetics properties of colloids.
26. Explain electrical properties of colloids.
27. Define rate, order and half life of various reactions. Derive equation.
28. Describe in brief about complex reaction.
29. Explain various types of order of reactions. Write note on accelerated stability studies and shelf life of product.
30. What are zero order reactions? How will you calculate half life of any chemical process following zero order kinetics?
31. Elaborate accelerated stability techniques.
32. Derive the equation for spreading coefficient. Describe the various applications of solid/ liquid interfaces.
33. Describe about adsorption phenomenon.
34. Exp-lain in brief about adsorption at solid/ gas interface.
35. Derive the equation for Freundlich isotherm and Langmuir adsorption.
36. Define the term conjugate solutions. Explain different types of such solutions with suitable examples.
37. Write a short note on (any two)
    a. Reversible reaction
    b. Parallel or side reaction
    c. Series or consecutive reaction.

8 Marks Question

56. Explain influence of temperature, light solvent on reaction rates.
57. Give details of accelerated stability analysis.
58. Describe stability of emulsion.
59. Explain about DLVO theory.
60. Which are different theories of emulsification
61. What are emulsions? Describe the methods used to detect emulsion type.
62. Define spreading coefficient. Add a note on adsorption at solid liquid interfaces.
63. Which are different Adsorption isotherms?
64. Give a neat diagram of electrical double layer and explain Nerst and zeta potential?
65. Explain various types of adsorption isotherms?
66. Explain the uses of sedimentation and viscosity techniques to determine molecular weight of colloidal material?
67. Explain about adsorption at solid /liquid interface.
68. Discuss the various methods for determination of order of reaction.
69. What are colloids? Compare three classes of colloids.
70. Describe the various methods for determination of order of reaction.
71. What are colloids? Explain various classes of colloids in detail.
72. Describe in details about spreading coefficient with its application.
73. Explain about adsorption isotherms and writ a short note on Langmuir adsorption.
74. Elaborate electrical properties of colloids.
75. What are colloids? How are they classified? Compare three classes of colloids.

76. Describe the use of sedimentation and viscosity technique to determined molecular weight of colloidal material.
77. Elaborate various solvent solute interactions.
78. Derive Scatchard Hildebrand equation.
79. Giving a neat diagram of electrical double layer. Explain Nerst and Zeta potential.
80. Explain various types of adsorption isotherms.
81. What is creaming? Discuss the various a factor on which rate of creaming depends.
82. What do you mean by cracking of emulsion? State the various reasons for cracking of emulsion.
83. Write a short note on (any two)
    a. Solubility of slightly soluble electrolyte
    b. Zero order reaction
    c. Rate and order of reaction
    d. Emulsifying agents in preparation of emulsion
84. Explain the factors which improve physical stability of emulsion.
85. What is emulsion? Discuss in brief various methods used for preparation of emulsion.
86. Describe in brief about classification of emulsifying agents.
87. Write a short note on wet gum and dry gum methods of emulsion.
88. Describe evaluation of physical stability of emulsion.
89. Explain about optical properties of colloids.
90. Describe about first order reactions.
91. Explain about second order reaction.
92. Explain in brief about determination of order of reaction.
93. Explain accelerated stability testing of pharmaceutical.
94. Explain ideal and real solution. How is solubility of weak electrolyte influenced by pH?
95. Derive zero order reaction equation and half life, shelf life of zero order reaction.
96. Define rate and order of reaction. Explain first order reaction.
97. Give definition and classification of colloids. How is molecular weight of colloidal material determined by viscosity, sedimentation, diffusion measurement?
98. How sedimentation and diffusion phenomenon is used to calculate molecular weight of colloid.
99. Describe the factors affecting solubility.
100. Describe sedimentation and viscosity method to determine molecular weight of colloid.
101. Discuss application of solid/ liquid interface in Pharmacy. Elaborate Langmuir adsorption isotherm.
102. Write a short note on (any two)
    a. Adsorption at solid –liquid interfaces.
    b. DLVO theory
    c. Preservation of o/w system.
103. Write a short note on (any two)
    a. The Faraday tyndall effect
    b. Light scattering
    c. Brownian movement
    d. Diffusion
    e. Sedimentation
    f. viscosity

6 Marks Question

81. Write an account on stabilization of protective colloids?
82. Write a short note on measurement of surface tension.
83. Write a short note on assessment of emulsion shelf life.
84. Describe about wetting and detergency phenomenon.
85. Discuss the kinetics of parallel reaction.
86. Define Nerst and zeta potential and Give comment on electrical double layer.
87. Differentiate between Lyophillic, association and Lyophobic colloids.
88. Derive an equation for the determination of surface tension of a liquid by the capillary rise method.
89. How can one know the type of emulsion produced with a given emulsifying agent? Giving Stoke's equation, explain physical instability of an emulsion.
90. Explain the formation of electrical double layer with a neat labelled diagram.
91. Describe the process of detergency.
92. Describe any three methods of preparing Lyophobic colloids.
93. Explain the concept of DLVO theory with energy curves. How this theory is applied in stabilizing the colloidal dispersion?
94. Describe any two methods for the purification of colloids.
95. Describe one experimental method for determining the zeta potential of colloids.
96. Explain the concept of Donnam membrane equilibrium with a suitable example and equation.
97. What are association colloids? Mention the mechanism of formation of micelles with one suitable example.
98. What is creaming in emulsions? How is it prevented in pharmaceutical emulsions?
99. Explain the causes for the instability of emulsions.
100. What is meant by instability in emulsion systems? Explain two instability markers in an emulsion.
101. Classify and describe the types of emulsions with suitable examples.
102. Describe an accelerated method for the evaluation of physical stability of an emulsion.
103. Which is the rate determining step in the reaction sequence? Write the general equation for the calculation of rate of reaction.
104. Derive an equation to show that the half life is independent of the concentration, in a first order reaction.
105. Describe the factors which govern the rate of a chemical reaction.
106. Differentiate between order and molecularity of a chemical reaction.
107. Differentiate between zero and first order reactions with suitable examples.
108. Compare the kinetics of first and pseudo first order reactions with suitable examples.
109. Deduce an equation for determining the specific reaction rate constant of a first order reaction.
110. Explain solubility of strong electrolytes.
111. Derive Michaelis Menton equation.
112. Why cracking of emulsion are occur. Give reason.
113. Explain about rheological properties of emulsion.
114. Explain about influence of temperature on reaction rate.
115. Explain factors influencing solubility of weak electrolyte.
116. Write a short note on solvent solute interaction.
117. Differentiate between molecular and colloidal dispersion.
118. Explain factors affecting solubility.
119. What are various solvent solute interactions for solubilization?
120. Write a short note on zero order reaction.
121. Discuss origin of charge and electrical double layer.
122. Explain heat of solution and temperature dependency of solubility process.

123. Explain the phase diagram of one component system with an example. Define the terms involved.
124. State Gibb's phase rule. Explain the terms involved with definitions and examples.
125. Draw a labeled temperature- composition diagram of phenol and water system and explain the behavior.
126. Explain the temperature –composition diagram of phenol-water system and explain the behavior.
127. Describe the variation of concentration along the tie line, within the curve and outside the curve at a particular temperature.
128. Draw the phase diagram of water system and draw conclusions on the degrees of freedom for different parts of the diagram.
129. Solve the following
    a. Using Stoke's law, state the factors affecting rate of creaming of an emulsions.
    b. How is the flocculation done using structured vehicle and protective colloids?
    c. Define Nerst and Zeta potential.

4 Marks Question

140. How solute interacts with solvent molecules?
141. Define with example polar solvents, nonpolar solvents and semi polar solvent.
142. Discuss strong and weak electrolytes.
143. Explain polar solvent such as water acts as solvent.
144. Explain solubility of slightly soluble electrolyte.
145. Explain about solubility of liquid in liquid.
146. Explain phase rule and phase equilibrium.
147. What is an ideal and real solution?
148. Depict factors affecting solubility.
149. Write a short note on Stabilization of colloids and protective colloids.
150. Write a short note on half life determination.
151. Write a short note on assessment of emulsion shelf life.
152. Write a short note on Electrical double layer.
153. Write a short note on Nerst and Zeta potentials.
154. Derive the rate determining step of reaction.
155. Write a short note on Wetting phenomenon and detergency.
156. Write a short note on molecularity of reaction.
157. Write a short note on electrical properties of interface.
158. Describe factors affecting solubility of gases in liquid.
159. Write a short note on spreading coefficient.
160. Give differentiate between following?
    a. Polar solvent and non polar solvent.
    b. Solubility of solid in liquid and liquid in liquid,
    c. Strong electrolytes and weak electrolyte.
    d. Ideal solution and non ideal solution.
161. Write a short note on mechanism of solvent solute interactions.
162. Write a short note on electric double layer.
163. What are ideal and real solutions?
164. How the rate of reaction does is influenced by temperature?
165. Explain influence of temperature on reaction kinetics.
166. Write the advantages of emulsion.
167. How will you distinguish between w/o and o/w type emulsion?
168. Write the qualities of an ideal emulsifying agent.

169. Write briefly about the preservation of emulsion.
170. How are emulsions stored?
171. Write in brief about various types of tests for identification of an emulsion.
172. Deduce an equation for the determination of interfacial tension using Du Nouy method.
173. Explain in brief about surface free energy.
174. Describe methods of preparation of Lyophobic colloids.
175. Give the types of dispersion.
176. Explain different techniques of separation or purification by dialysis of colloids.
177. Define emulsion. Give its advantages and disadvantages.
178. Differentiate between o/w and w/o type of emulsion.
179. Write down the test for identification of type of emulsion.
180. Detergency is a complex process. True or false. Explain.
181. Emulsions are thermodynamically unstable. Why?
182. Wetting agents are also surface active agents. Explain.
183. Define a zero order reaction. Give equations for determining shelf life and half life for the same and explain the term.
184. Give ideal characteristics of emulsifying agent.
185. Write a short note on phase inversion.
186. Explain why suspensions mostly follow zero order.
187. Define half life in a first order. Explain the concept of half life in a first order.
188. Define a pseudo first order reaction. Give two examples.
189. Write a short note on solubility of slightly soluble electrolyte.
190. Derive Scatchard- Hildebrand equation for solubilization of solid in non ideal solution.
191. Discuss kinetics of parallel reaction.
192. What are ideal and real solutions?
193. Describe effect of temperature on rate of reaction.
194. Explain phase rule equilibria.
195. Why interfacial tension is generally less than surface tension.
196. Describe the solubility of weak electrolyte.
197. Name factors affecting reaction rate and explain effect of temperature on reaction rate
198. Define the term-
    a. Solution
    b. Saturated solution
    c. Unsaturated solution
    d. Supersaturated solution
199. Write the proportion of oil, water, gum acacia in preparation of primary emulsion by using a) fixed oil; b) volatile oil; c) mineral oils.

2 Marks Question

1. Define the term emulsion?
2. What is a primary emulsion?
3. Define term emulsifying agent.
4. Define the term interface.
5. Define the term solubility.
6. Give the method of expressing solubility.
7. Write down the different type of surface and interfaces.

8. Write the equation of strokes law.
9. Give the applications of colloids.
10. Why emulsions are appearing milky white?
11. When a drop of oleic acid is placed on the surface of water, the liquid spreads on water as a film. How?
12. Why ampicillin trihydrate is less soluble in water than anhydrous form.
13. Give the influence of temperature on solubility of various salts.
14. When a substance is added to a liquid its spreading is due to an increase in the surface free energy. Explain.
15. Benzene spreads on water. Explain.
16. Interfacial tensions are invariably less than surface tensions. Explain.
17. When a drop of liquid is suspended in air, it assumes only a spherical shape. Why?
18. What is a reason which causes phase inversion of emulsion?
19. Why an emulsifying agent is required in the preparation of emulsion?
20. Explain the reasons for presence of a charge on the solid/liquid interface.
21. Give reasons for the capillary rise of water, when a capillary is place in a a beaker of water.
22. Explain why zeta potential may be positive, negative or zero.
23. Explain why the type of emulsion formed depends on the coalescence kinetics of the two liquid phases.
24. Why benzene spread on water?
25. Define zeta potential. How is it different from Nerst potential?
26. Define wetting process. How is it useful in Pharmacy?
27. List two wetting agents. Describe one method for the determination of wetting.
28. Define contact angle. What are its applications?
29. State and explain Langmuir adsorption isotherm.
30. Define surface tension. What is it due to?
31. Write the equation for the spreading coefficient. Suggest two methods to improve the spreading of a medicament.
32. Explain the concept of surface tension.
33. Define adsorption isotherm. State Freundlich adsorption equation and plot.
34. Mention an equation for determining the surface free energy. What is its application?
35. What is meant by protective colloids? Mention one example for the same.
36. Explain the term colloids. Mention two applications of colloids.
37. Classify association colloids, giving one examples for each type.
38. What is Brownian movement? Which formulation exhibits this movement?
39. List the reasons for the origin of charge on colloidal particles. How is it important in predicting the stability of colloids?
40. Define Lyophillic colloids with suitable examples. How are they stabilized?
41. Define Schulz rule. What are its applications?
42. List the kinetics properties of colloids. What are its applications?
43. Describe one method to evaluate the protective property of colloids with suitable examples.
44. Define lyophobic colloids. Give two examples.
45. Describe one methods of mechanical dispersion for preparing Lyophobic colloids.
46. Define an emulsion. Mention two advantages of emulsions with suitable examples.
47. Describe two methods for identifying the types of emulsion.
48. What is meant by phase volume ratio? How is it useful in preparation of emulsions?
49. Explain the term phase inversion with one suitable example.
50. The determination of rheological properties is necessary in evaluation of emulsions. Why?

51. Emulsions contain an auxiliary label “Shake well before use”. Why?
52. List different thickening agents that are used in o/w and w/o types of emulsions.
53. How do fluctuations in the temperature affect the stability of an emulsion.
54. Termolecular reactions are seldom observed. Why?
55. Define molecularity. Give an example for it.
56. Define order of reaction with a suitable example.
57. Why does the same reaction follow different molecularity and order?
58. Define first order reaction. List the examples which have applications in biological processes.
59. Define second order reaction. Give the equation.
60. Define half life. What relationship does the half life period bear to the initial concentration in first order and second order?
61. Write the Michaelis Menton equation and explain its importance.
62. Differentiate between half life and shelf life for a first order reaction.
63. Write two applications of chemical kinetics.
64. Define spreading coefficient and give application of spreading coefficient.
65. Why addition of electrolyte decrease zeta potential.
66. Why solid surfaces offer a site for adsorption of gases and dissolved solutes.
67. Define cohesion, adhesion and interface.
68. Describe the applications of phase rule to the equilibrium between different phases of water.
69. Describe the applications of study of partially miscible liquids.
70. Comment on the effect of naphthalene, potassium chloride and succinic acid on the CST of phenol water system.
71. Define CST and miscibility temperature.
72. Describe the applications of phase diagram of ice water -water -vapor system.
73. State the phase diagram of water and label the various parts.
74. Define the term degree of freedom in phase rule. State the degrees of freedom for a saturated solution of sodium chloride in water.
75. Define phase. Give two examples of coexisting phases.

SUBJECT: PHARMACEUTICAL ORGANIC CHEMISTRY-II (BP-402)

Question carries16 marks.

1. Summarize the methods of preparation and reactions of aldehyde and ketone.
2. Explain in detail the following reactions of aldehyde and ketones.
    a. Oxidation c. Addition of cyanide
    b. Reduction d. Addition of alcohol
3. Explain in detail the methods of preparation and reactions of carboxylic acids.
4. Explain in detail Hofmann degradation of amides and write in detail about basicity of amines.
5. Write the reactions of nitrous acid with primary, secondary and tertiary amines?Explain in detail preparation reactions of diazonium salt.
6. How will you obtain diazonium salt? Explain in detail reactions of diazonium salt.
7. Give a detail account on nucleophilic aliphatic substitution reaction. Explain in detail SN1 reaction.
8. Explain in detail about Unimolecular and Bimolecular nucleophilic aliphatic substitution reaction.
9. Complete the following reaction giving product, mechanism and explanation.(4x4=16)
    a. $2CH_3CHO \xrightarrow{OH}$?
    b. Benzaldehyde + formaldehyde $\xrightarrow{50\%\ NaOH}$?
    c. Benzamide + Bromine + NaOH $\longrightarrow$?
    d. t-butyl Bromide $\xrightarrow{OH}$?
    e. Benzoic acid + $SOCl_2$ $\longrightarrow$?
10. Write a detail account on Electrophilic Aromatic substitution reaction of benzene including mechanism, orientation, reactivity, and effect of halogen on electriphilic aromatic substitution.
11. What is electrophilic aromatic substitution? Explain the effect substituent group, mechanism and reactivity of electrophilic substitution reaction.
12. a. Define radical, electrophile, nucleophile with examples. (4M)
    b. What is electrophilic aromatic substitution. Discuss the mechanism, reactivity and orientation of substitution (12M)
13. Write short note on the following
    a. Structure of benzene
    b. Stability of benzene
    c. Resonance structure of benzene
    d. Orbital picture of benzene
14. Answer the following- (4x4=16)
    a. Write structural formula for-
        i) 2-nitro, 3-chlorobenzoic acid
        ii) 3,4,5-tri bromo nitrobenzene
    b. Discuss about stability of benzene.
    c. What is configuration? Give two examples with structures
    d. Why halogen though electron withdrawing are deactivating ortho-para director in electrophilic aromatic substitution.

15. Write the synthesis of any four of the following from toluene or benzene. (4x4=16)
    a. Benzoic acid
    b. 4-chloro benzoic acid
    c. *p*-nitrobenzoic acid
    d. *m*-dinitrobenzene
    e. 4-aminotoluene
16. Short note on- any four (4x4=16)

a. Aromaticity of benzene.
b. Diazonium salt
c. Geometrical isomers
d. Resolution of racemic mixtures
e. Identification test of different amines

17. Write detail note on- (4x4=16)
    a. Huckel rule.
    b. Differentiate between enantiomers and diastereomers
    c. HVZ reaction.
    d. Analysis of amines
18. Explain in detail with examples enantiomers, diastereomers and geometric isomers. (12M)
19. Explain in detail about stereoisomers and geometric isomers including projections, configurations and examples.
20. Write short note on:
    a. Inductive effect
    b. Mesomeric effect
    c. Carbonium ion
    d. Free radicals

Question carries 10 marks.

1. Compare SN_1 and SN_2 reaction. (10)
2. Explain in detail Hoffmann degradation of amides. (10)
3. Give an account on preparation and reactions of carboxylic acid. (10)
4. Give an account of reaction kinetics, mechanism and stereochemistry in nucleophilic aliphatic substitution reaction proceeding with racemization plus inversion.
5. Explain reaction mechanism, stereochemistry of unimolecular and bimolecular nucleophilic aliphatic substitution reaction.
6. Discuss about preparation and reactions of diazonium salt. (10)
7. Describe hemolytic and heterolytic fission of covalent bond. Explain how carbonium ion, carbanion and free radicals obtained?
8. Explain the following terms
    a. Carbonium ion and Carbanion
    b. Electrophile and Nucleophile

Question carries 8 marks.

1. Give the methods of preparation of aldehyde and ketone.
2. Explain in detail nucleophilic addition reactions of aldehyde and ketone.
3. Write a detail account on α,β-unsaturated carbonyl compound.
4. Explain in detail about acidity of carboxylic acid.
5. Give the methods of preparation of carboxylic acids.
6. What are amines? Give their classification. Discuss any three reactions of aromatic amines.
7. Explain the methods of preparation of amines?
8. Discuss about the basicity of amines. (8)
9. Explain in detail preparation of amines by Hofmann degradation of amides.
10. Give a detail account of reactions of diazonium salt.
11. Explain the replacement and coupling reactions of diazonium salts
12. Give the different methods of preparation of alky halide.

13. Explain the mechanism kinetics and stereochemistry of SN_1 reaction.
14. Write a detail account on SN2 reaction.
15. Give the preparation and reactions of alcohol.
16. Explain the following reactions of alcohol
    a. Alcohols as acids and bases
    b. Reaction of alcohol with hydrogen halide.
17. What is aromaticity? Comment on electrophilic aromatic reaction with examples.
18. Explain the resonance structure and orbital picture of benzene.
19. Explain in detail the structure and stability of benzene.
20. Explain in detail about aromatic character the Huckle rule with examples.
21. Explain electrophilic aromatic substitution reaction.
22. Explain in detail theory of reactivity and orientation of electrophilic aromatic substitution reaction.
23. What is aromaticity? Comment on electrophilic aromatic substitution reaction with examples.
24. Explain in detail reaction mechanism of nitration and sulfonation in electrophilic aromatic substitution reaction.
25. Explain in detail about stereoisomers and racemic modification.
26. What is Bayer's strain theory? Explain limitation of this theory.
27. Explain in detail about plane polarized light and optical activity.
28. What is stereoisomerism? Explain the projection structures of stereoisomers.
29. Explain in detail about racemic modification and resolution.
30. Explain in detail about enantiomers and diastereomers with examples.
31. Explain in detail about configuration, its specifications and sequence rules.
32. Write a note on configuration and sequence rules
33. Write a brief account of stereochemistry.
34. Write short note on- (4x2=8)
    a. Reamer-Tiemann reaction.
    b. Williamson's synthesis of ether.
35. Define substrate and reagent? Explain the factors influencing the reaction.
36. Explain in detail about intermediates of reactions.
37. Classify the organic reactions and explain any two reaction?
38. Classify the organic reactions? Explain in detail the mechanism of substitution reaction.
39. Explain in detail about addition reaction with examples.
40. Explain in detail the mechanism of oxidation and reduction reaction.
41. Short note on-
    a. Carbonium ion
    b. Carbanions

Question carries 6 marks

1. Write a note on α-halogenation of aliphatic acids.
2. Give an account of industrial source of acetic acid, Benzoic acid and pthalic acid.
3. Explain with reaction the method of synthesis of carboxylic acid from Grignard reagent.
4. Explain the effect of substituent on acidity and basicity.
5. Give any three methods of preparation of alcohol.
6. Explain this "Alcohol as acids and bases"
7. Explain the reaction of alcohol with hydrogen halides?
8. Give preparation and reactions of ethers.
9. Explain the methods of preparation of aromatic aldehyde and aromatic ketones?
10. Summerize the nucleophilic addition reaction of carbonyl compound.
11. Explain the reduction reaction of aldehyde and ketones.

12. Explain in detail with mechanism the addition of alcohol to aldehyde an ketone.
13. Write a note on analysis of amines.
14. Discuss the mechanism of SN_1 and SN_2 reaction of alkyl halide.
15. Discuss the mechanisms and order of kinetics in nucleophilic aliphatic substitution reactions.
16. How are alkyl halides prepared?
17. Explain in detail the steps involved in Hofmann rearrangement and stereochemistry at migrating group?
18. Write in detail about diazonium salts.
19. What is the action of nitrous acid on primary, secondary and tertiary amines.
20. Explain the replacement reaction of diazonium salt.
21. Explain the coupling reaction of diazonium salt
22. Give the synthesis of *o*-bromotoluene and *p*-bromotoluene from toluene.
23. Discuss in detail the aldol condensation reaction.
24. How will you distinguish between primary, secondary and tertiary amines.
25. Write a brief account on aromaticity.
26. Give the general mechanism of electrophilic aromatic substitution reaction? Explain in detail with examples activators and deactivators in electrophilic aromatic substitution reaction.
27. Explain in detail about stability of benzene ring.
28. What is Huckle rule? Write structure of two compounds that follows this rule.
29. Explain the effect of substituent group in electrophilic aromatic substitution reaction with example.
30. Explain diastereomers and give its properties.
31. Explain enantiomers and mention the properties of diastereomers.
32. How will you obtain the following.
    a. P-amino benzoic acid from benzene
    b. Salicyladehyde from phenol
33. Identify (A), (B) and (C) in following.
    Acetone $\xrightarrow{LiAlH_4}$ (A) $\xrightarrow{SOCl_2}$ (B) $\xrightarrow{alc\ KOH}$ (C)

34. Identify (A), (B) and (C) in following.
    $CH_3CH_2OH \xrightarrow{SOCl_2}$ (A) $\xrightarrow{NaCN}$ (B) $\xrightarrow{LiAlH_4}$ (C)
35. Write short note on-
    a. Inductive effect
    b. Mesomeric effect
36. Write a short note on stability of carbonium ion and carbanion ion.
37. Explain relative stability of primary, secondary and tertiary carbonium ion.
38. Explain relative stability of primary, secondary and tertiary carbanion ion.

Question carries 4 marks

1. Why aldehydes are more reactive than ketone towards nucleophilic addition reaction?
2. What are carbonyl compounds? Give any two examples with structure and IUPAC names.
3. Give the method of preparation of ketone by friedel craft acylation.
4. What happens when formaldehyde is treated with concentrated NaOH solution?
5. What is Clemmensen reduction and Wolff-Kishner reduction?
6. What happens when acetaldehyde is treated with dilute NaOH solution?
7. How will you distinguish between aldehyde and ketone?
8. Write the general mechanism of nucleophilic addition reaction of carbonyl compounds.
9. Give the mechanism of addition of HCN to aldehyde.
10. How will you synthesize acetaldehyde from formaldehyde?
11. Why aldehydes are easily undergoes oxidation than ketone?

12. Explain iodoform test for analysis of ketones.
13. Explain the structure of carboxylate ion.
14. Write a note on cannizarro reaction.
15. Explain HVZ reaction.
16. Discuss the effect of substituent on monocarboxylic acids.
17. What happens when acetic acid is treated with PCl_5?
18. What happens when acetic acid is treated with $SOCl_2$?
19. Write a short note on Hell-Volhard-Zelinsky reaction.
20. What is dicarboxylic acids? Give two examples of dicarboxylic acids with structures.
21. Explain stereochemistry of nitrogen in ammonia.
22. Write about analysis of amines.
23. Explain Hinsberg test.
24. Explain why amines are more basic than amides?
25. Why aromatic amines are weaker basic than ammoni?.
26. How will you synthesize n-propylamine from n-propyl chloride.
27. Explain why ethylamine is stronger basic than ammonia.
28. What is the action of nitrous acid on amines.
29. What is sandmeyer reaction?
30. Explain the fact that trimethylamine boils lower than dimethylamine
31. How will you synthesize n-butylamine from n-propyl chloride.
32. Give the methods of preparation of alkyl halides.
33. Give the mechanism of reaction of methyl bromide and aqueous NaOH to form methyl alcohol.
34. Give the mechanism of reaction of tert-butyl bromide with aq.NaOH to form tert-butyl alcohol.
35. Explain the reaction kinetics in nucleophilic aliphatic substitution reaction with examples.
36. Give the industrial source of ethanol.
37. Why alcohols are weaker acidic than water?
38. Explain the oxidation reaction of alcohols?
39. What is Williamsons synthesis of ether.
40. Give the different structures of benzene with its molecular formula.
41. What are aromatic hydrocarbons? What is the difference between aliphatic and aromatic hydrocarbons?
42. Write about molecular orbital picture of benzene.
43. Explain the resonance structure of benzene.
44. Write about the stability of benzene.
45. Why benzene undergoes electrophilic substitution reaction rather than addition reaction?
46. Explain why methyl ($-CH_3$) group is activating and nitro (NO_2) group is deactivating substituent in electrophilic aromatic substitution reaction?
47. Write short note on activators and deactivators in electrophilic aromatic substitution reaction.
48. What is the general mechanism of electrophilic aromatic substitution reaction?
49. What is the effect of halogen on electrophilic aromatic substitution reaction?
50. What is polynuclear aromatic compound. Draw the structures of naphthalene, anthracene and phenanthrene.
51. Define specific rotation, enantiomers, diastereomers and optical activity.
52. What are the properties of enantiomers?
53. Write about the sequence rules.
54. Define radical, electrophile, nucleophile with example.
55. Write a short note on carbocation.
56. Define stereoisomers? Give its types with examples?
57. Write short note on enantiomers.
58. What do you mean by meso compound? Give its example.
59. Write short notes on geometric isomers?

60. Define configuration? Give specifications of configuration.
61. Explain the term optical activity.
62. What is plane polarized light? Explain optically active and inactive substance.
63. Write a note on racemic modification and resolution.
64. What is bayer's strain theory?
65. What is homolysis and heterolysis?
66. Define hemolysis and heterolysis. Give the classification of reagents with examples.

Question carries 2 marks

1. Draw the structures of : a) Salicylaldehyde b) 2-pentanone
2. Draw the structures of : a) Diethyl ketone b) 4-methyl-3-nitro benzophenone
3. Give the structure and IUPAC name of following.
   a) α –methyl butyric acid b) β –phenyl propionic acid

21. Give the structure of following.
   a) p- hydroxy benzoic acid b) 2,4-dinitro benzoic acid
22. Give the structures of : a) 2,4,6-tribromoaniline b) Diphenylamine
23. Give the structural formula of : a) tert-butylamine b) ethyl methylamine
24. Explain the stereochemistry of nitrogen in ammonia.
25. Write about the salts of amines.
26. Give the structural formula of : a) n-butyl bromide b) Iso-propyl chloride
27. Give the structural formula of : a) 3-chloro-2-methyl pentane b) 2-iodo-2-methyl butane
28. Give the structure of following.
   a) tert-butyl alcohol b) 2,2-dimethyl-1-propanol
29. Give the structural formula of : a) m-dibromobenzene b) 2-chloro-4-nitro phenol
30. Give the structural formula of : a) β-napthol b) 2,4-dinitro-1-napthylamine
31. Define enantiomers and diastereomers.
32. Define specific rotation and optical activity.
33. Give the structural formula of : a) 2,4-Dimethylaniline b) β-phenylehylamine
34. Give the structural formula of : a) Acetophenone b) benzophenone
35. Give the structural formula of : a) benzaldehyde b) 2-butenal
36. Draw the kekule structure of benzene.
37. Give the orbital picture of benzene.
38. Define substrate and reagent.
39. Define electrophile and nucleophile.
40. Define carbonium ion and carbanion.
41. Draw the structures of: a) m-dinitrobenzene b) p-nitro toluene
42. Draw the structure of naphthalene and anthracene.

SUBJECT: PHARMACEUTICAL ANALYSIS II (BP-403)

2 Marks Questions

1. Define the term 'Refractive Index'.
2. Why refractive index measures in four decimal numeric formats?
3. Write in sentence the term '$\eta^{20}{}_{D}$'.
4. Define the term 'Specific Refractive Index Increment'.
5. Define the term 'Specific Refraction'.
6. Define the term 'Molar Refraction'.
7. Define the term 'optical Exaltation'.
8. Define the term 'Polarimetry'.
9. Define the term 'Optical Activity'.
10. Define the term 'Plane Polarized Light'.
11. Define the term 'Optical Isomerism'.
12. Define the term 'Specific Rotation'.
13. The magnitude of rotation depends upon which factors?
14. Define the term 'Ohms law'.
15. Define the term 'Conductance'.
16. Define the term 'Specific Resistance'.
17. Define the term 'Resistance'.
18. Define the term 'Specific Conductance'.
19. Define the term 'Equivalent Conductance'.
20. Define the term 'Molecular Conductance'.
21. Define the term 'Conductometric Analysis'.
22. Name the methods which are generally used for determining pH of the solution.
23. Define the term 'pH'.
24. What is operational definition of pH?
25. Give advantages and disadvantages of glass electrode.
26. Explain the term 'potentiometric Titrations'.
27. Why potentiometric titration is carried well beyond the end point?
28. Define the term 'Thermal Analysis'.
29. Name the different types of thermogravimetry.
30. What do you mean by thermal stability?
31. What is thermogravimetric curve?
32. Define thermogravimetry.
33. What do you mean by Curie point in thermogravimetry?

4 Marks Questions

1. What is the general principle to determine the refractive index of a medium?
2. How wavelength and temperature affects the refractive index of medium?
3. What is the effect of wavelength and temperature upon refractive index?
4. Draw a suitable schematic diagram and give the general principle of refractometry.
5. Write a note on refractive index of water and solid.
6. How will you determine the critical micelle concentration of substance by refractometry?

7. Discuss in brief Abbe's Refractometer and give its advantages.
8. What is the role of temperature correction in case of refractive index measurement?
9. Explain the term 'Chromatic Aberration'.
10. Discuss in brief Abbe's Refractometer and give its applications.
11. What do you mean 'Plane Polarized Light'?
12. What is optical activity? What are the effects of optically active substance on direction of plane polarized light?
13. What do you understand by optical activity? Define specific rotation.
14. What do you understand by the term optical isomerism?
15. Discuss the relation between optical activity of substance and plane polarized light.
16. Which types of molecules can be analyzed by polarimetry?
17. What is the theory of Optical Activity?
18. Give the explanation about the conductometric analysis.
19. Explain the following terms-
    a. Specific resistance
    b. Specific conductance.
20. Explain the relation between specific conductance and equivalent conductance.
21. Explain the relation between specific conductance and molecular conductance.
22. Which are general types of apparatus for conductometric titrations?
23. What are the advantages and disadvantages of Conductometric titrations?
24. What is operational definition of pH?
25. What is the acid error of glass electrode due to?
26. Explain how the glass electrode functions as an indicator electrode for hydrogen ion.
27. Will the pH reading of a soda-lime glass electrode be too high or too low in 0.1 M NaOH? Explain.
28. Sketch and label a metal ion selective glass electrode.
29. How accurately can the pH of an unknown solution generally be measured? How much is this in terms of millivolts measured?
30. Discuss the pH limitations of ion selective electrodes.
31. Explain how the mercury electrode serves as an indicator electrode for various metal ions.
32. What are the advantages of Potentiometric Titrations?
33. Give a detail account on effects of sample characteristics on DTA.

8 Marks Questions

1. What is the principle of Abbe's Refractometer? Give the advantages of Abbe's Refractometer.
2. What are the applications of refractometry? Discuss in brief 'Optical Exaltation'.
3. Give the principle and instrumentation of Abbe's Refractometer.
4. Explain the term 'Refractive Index' in detail. What are the effects of wavelength and temperature change upon refractive index?
5. Give the mechanism and working of Abbe's refractometer.
6. Write brief note on-
    a. Polarized Light
    b. Racemic mixture
    c. Plane of Polarization.
7. Draw a simple diagram which shows the principle components of the polarimeter.
8. Briefly explain the characteristics of an optically active substance.

9. What units would a sugar chemist tend to use in order to describe the optical rotation of a source solution?
10. Which procedure can be used to confirm that the optically active material is sucrose?
11. What is the effect of dilution on the conductance, Specific Conductance, equivalent and molecular conductance?
12. Explain the different methods of conductance measurement. Give the preparation and use of conductivity water.
13. What is the method of conductance measurement? Discuss the source of alternating current.
14. Write a detail note on conductivity cell and electrodes used for conductivity measurement.
15. Why there is a need of temperature control unit and determination of cell constant.
16. What is a glass electrode? What is its principle?
17. Describe the hydrogen electrode? What are its advantages and disadvantages?
18. Justify, the response associate with the glass electrode is related to the pH of its environment by the expression.

    $$E = k + 0.059\ pH$$

    What will be the uncertainty in pH that results from an uncertainty of 0.001 V in the measurement of E?
19. What is meant by an ion selective electrode?
20. Explain the method of pH indicator used in determining pH.
21. Describe in detail the effect of sample characteristics on TG Curve.
22. What requirements should a ideal thermobalance have?
23. Give a detail account on various components of a Stanton Redcrof TG-750. Give the advantages of Stanton Redcrof TG-750 over other thermobalance.
24. Give a detail account on effects of instrumental factors on DTA.

10 Marks Questions

1. Discuss in detail the principle and instrumentation of Abbe's Refractometer with its advantages.
2. Define the following-
    a. Specific Refraction
    b. Molar Refraction
    c. Specific Refractive Index Increment
    d. Optical Exaltation.
3. Write in details instrumentation of Abbe's Refractometer. Give the role of temperature correction.
4. What are the application of Refractometry and give any two examples by Kekule's formula and determination of critical micelle concentration.
5. Discuss various types of refractometer in details and explain factors affecting refractive index of medium.
6. Give a detail account on applications of optical activity.
7. Discuss in detail about polarimeter with suitable diagram. Explain its principle, construction and working.
8. Discuss in detail a plane polarized light.
9. Explain in detail the optical isomerism, configuration and effect of molecule having more than one asymmetric center.
10. Discuss in detail about type of acid-base titrations carried out by conductometric titration.
11. Explain in detail the determination of solubility of sparingly soluble salt and degree of hydrolysis by conductometric titration.

12. Explain in detail the determination of basicity of organic acids and ionic product of water by conductometric titration.
13. Explain in detail the determination of vanillin in vanilla essence and degree of dissociation of weaker electrolytes by conductometric titration.
14. Discuss in detail about type of precipitation, redox and complexometric titrations carried out by conductometric titration.
15. Discuss in detail about type of replacement titrations carried out by conductometric titration. Give the advantages and disadvantage of conductometric titration.
16. What assumptions are involved in the establishment of the conventional scale of pH? What is the uncertainty with which one can measure pH number?
17. Explain in details the ion selective electrodes with suitable and well labeled diagram.
18. Explain in details the Quinhydrone electrode, its principle and working. Give advantages and disadvantages of it.
19. Explain in details the hydrogen electrode, its principle and working. Give advantages and disadvantages of it.
20. Explain in details the antimony-antimony oxide electrode, its principle and working. Give advantages and disadvantages of it.
21. Give the detail introduction about thermogravimetry and write the information obtained from TG curve.
22. Discuss in detail about the factors affecting Thermogravimetric curves.
23. Write in detail about the introduction about differential thermal analysis and discuss in detail the difference between the DTA and TG.
24. Give a detail account on factors affecting DTA Curve.
25. Write in detail the instrumentation involved in DTA.

16 Marks Questions

1. What is refractive index? Give the principle and instrumentation of Abbe's Refractometer with their advantages.
2. What is refractive index? Explain the factors affecting refractive index. Give the advantages and general principle of Abbe's Refractometer.
3. What is polarimeter? Explain in detail optical activity. Discuss the principle, construction and working of polarimeter.
4. What is polarimeter? Explain in detail plane polarized light. Discuss the principle, construction and working of polarimeter.
5. Discuss in detail about the types of titrations carried out by conductometric analysis.
6. Explain in detail the applications of conductometric measurement.
7. Explain in detail the various types of electrodes to determine pH of a solution with their advantages and disadvantages.
8. Discuss in detail the instrumentation used in potentiometric determination
9. Discuss in detail instrumentation of thermogravimetry.
10. Give a detail account on applications of thermogravimetry.
11. Discuss in detail instrumentation of differential thermal analysis.
12. Give a detail account on applications of differential thermal analysis.

SUBJECT: PHARMACEUTICAL MICROBIOLOGY AND IMMUNOLOGY II (BP-404)

Question carries 16 marks

1) Define sterilization. Name different methods of sterilization used in pharmaceutical industry with their advantages and limitations. Discuss the role of sterilization indicators in sterilization.
2) Describe antibodies in detail. Explain various antigen –antibody reactions.
3) Define disinfection. Explain in brief different evaluation methods of disinfectants.
4) Define aseptic technique. Write in detail about the construction and design of aseptic area.
5) Describe antigen and antibody in detail. Explain different types of immunity.
6) Give a detail account on hypersensitivity reactions.
7) Define sterilization. What are various methods of sterilization. Explain in detail physical methods of sterilization.
8) What are vaccines. Describe in detail production and quality control of vaccines preparations.
9) What is sterilization and explain various techniques of sterilization.
10) Give in detail account on antibodies. Explain antigen- antibody reaction.
11) Write the general methods for preparation, standardization and storage of vaccines.
12) Explain in brief design of aseptic area, sources of contamination in aseptic area and method of prevention of contamination.
13) What are vaccines. Write in detail manufacturing and standardization of bacterial vaccine with suitable example.
14) Describe antibodies in detail. Explain various antigen- antibody reactions with their application.
15) What are antibodies. Explain different types of antibodies and describe various factors affecting antigenisity.
16) What are antigens. Give a detail account on various serological reactions.

Question carries 8 marks

1) Define sterilization. List the different methods used for sterilization with suitable examples. Explain the sterilization by radiations.
2) Explain in brief sterilization indicators.
3) What are antigen and antibody. Describe various types of antibodies.
4) Note on – Evaluation of disinfectants.
5) Explain in detail manufacturing of bacterial vaccines.
6) Define immunity and explain its types.
7) Define D- value and Z-value. Describe sterility testing of pharmaceutical products.
8) Write construction and working of hot air oven.
9) Write construction and working of autoclave.
10) Define sterilization. Explain in detail mechanical method of sterilization.
11) Enlist different methods of sterilization and explain in brief moist heat sterilization.
12) Define disinfection. Explain chemical classification of disinfectants.
13) What are disinfectants. Explain different factors affecting action of disinfectants.
14) List the different methods used for evaluation of disinfectants. Write in detail about phenol coefficient test.
15) Write in detail about construction and design of aseptic area.
16) What are the main sources of contamination of an aseptic area. Write different methods for prevention of contamination.

17) Define aseptic technique. Explain laminar air flow system along with their different air flow patterns.
18) What is microbial flora of human body. Explain in detail the defence mechanism of host.
19) Define immunity. Explain different types of immunity.
20) What are antigens. Explain different factors affecting antigenicity.
21) What are antibodies. Explain various types of antibodies.
22) Define antigen and antibody. Explain structure of antibody.
23) Enlist various serological reaction and explain precipitation reaction in detail.
24) Describe precipitation reactions an explain zone phenomenon.
25) Enlist antigen –antibody reactions. Explain the principle and procedure for ELISA.
26) What is agglutination. Explain different types of agglutination reactions.
27) Write the principle and characteristics of antigen- antibody reactions. Explain complement fixation test.
28) Describe ELISA and RIA in detail.
29) Name different types of hypersensitivity reaction. Explain in detail type I hypersensitivity.
30) Define hypersensitivity. Enlist different types of hypersensitivity reactions. Explain type II hypersensitivity.
31) Explain in detail immune-complex mediated hypersensitivity and cell mediated hypersensitivity.
32) Define hypersensitivity. Explain in brief anaphylactic hypersensitivity.
33) Enlist different types of hypersensitivity reactions and describe cytotoxic hypersensitivity.
34) Explain shick test and tuberculin test for toxin.
35) What are viral vaccines. Describe method of preparation for polio and rabies vaccines.
36) What are vaccines. Write general method of preparation for bacterial and viral vaccines.
37) Write in detail production and quality control tests for bacterial vaccines.
38) Write in detail production and quality control tests for viral vaccines.
39) Give a detail account on production of BCG vaccines and TAB vaccines.
40) Explain in brief antiviral and antitoxin sera.
41) Define and classify immunity. Explain different types of immunity with examples.
42) Explain the mechanism of antibody production. Describe the structure and properties of each of the immunoglobulin class.
43) Enumerate antigen-antibody reactions. Describe agglutination reaction with suitable example.
44) Explain ELISA test along with its principle and applications.
45) Define hypersensitivity. Explain in detail its types.
46) Write in detail evaluation of disinfectants.
47) Explain in detail about ELISA.
48) Explain in brief agglutination and precipitation reactions.
49) Write detail account on sterility testing of pharmaceutical products.
50) Define antigen. Write about types of antigen and explain different factors affect antigenicity.
51) Define microbial flora. Explain microbial flora of human body.
52) Describe in brief Immunoelecrophoresis and Immunofluroscence.
53) Give detail account on anaphylactic and cytotoxic hypersensitivity.
54) Define hypersensitivity. Explain in detail various types of hypersensitivity.
55) Define sterilization. Mention its types and explain heat sterilization.
56) Define sterilization. Write in detail on sterilization indicators.
57) Note on – Evaluation of disinfectants.
58) Note on – Manufacturing of bacterial vaccines.
59) Outline agglutination reaction and complement fixation test in detail.
60) What are antiboies. Explain in brief agglutination reactions.

Question carries 4 marks

1) Differentiate between – Enotoxin and Exotoxin
2) Differentiate between- Active immunity and passive immunity
3) Differentiate between – Immediate hypersensitivity and delayed hypersensitivity
4) Differentiate between – vaccine and sera
5) Differentiate between – T cell independent and T cell dependent antigen
6) Write the applications of ELISA.
7) Write the ideal properties of disinfectants.
8) Note on – Tuberculin test.
9) Define sterilization. Enlist different methods of sterilization.
10) What are biological indicators for sterilization. Explain giving suitable example.
11) Write the mechanism involved in dry and moist heat sterilization.
12) Explain in short antigen an antibody.
13) Explain structure of antibody.
14) Write the method of evaluation of disinfectant by Rideal – Walker test.
15) Describe active immunity with examples.
16) What is passive immunity. Explain it with example.
17) Describe the structure of antibody.
18) What are antigens. Write important properties of antigen.
19) Classify different types of immunity.
20) Explain filtration sterilization.
21) Describe method of preparation of BCG vaccine.
22) Describe method of preparation of Polio vaccine.
23) Note on – Shick test.
24) Explain complement fixation test.
25) Note on – Laminar air flow system.
26) Note on – RIA
27) Define hypersensitivity. Explain mechanism of type I hypersensitivity.
28) Explain mechanism of cytotoxic hypersensitivity.
29) Describe preparation of BCG vaccine.
30) Describe preparation of Polio vaccine.
31) Note on – Role of phenol as disinfectant.
32) Describe mechanical method of sterilization.
33) Draw the diagram of autoclave and write principle of moist heat sterilization.
34) Write mechanism involved in dry and moist heat sterilization.
35) What are antigens and antibodies.
36) Explain different factors affecting antigenicity.
37) Define allergen. Explain mechanism of type II hypersensitivity.
38) Note on – Phenol coefficient test.
39) Explain various class of antibodies.
40) What are vaccines. Write preservation of vaccine preparations.

Question carries 2 marks

1) Give diagramatic representation of immunoglobulin A.
2) Enlist different antigen – antibody reactions.
3) Define antibody. Enlist its types.

4) Define sterilization. Name any four filters used for filtration sterilization.
5) Define immunity. Give its types.
6) Define sterilization and disinfection.
7) Define antigen. Enlist different factors affecting antigenicity.
8) What are vaccines. Name any two bacterial vaccines preparation.
9) Write principle of precipitation reaction.
10) Write principle of agglutination reaction.
11) Enlist different methods for evaluation of isinfectants.
12) What are sterility tests. Write media used for sterility testing.
13) Define antibody. Draw the structure of antibody.
14) Write in short about HEPA filters.
15) Enlist classification of sterilization methods along with example.
16) Enlist different methods for evaluation of disinfectant.
17) Write any four differences between active immunity and passive immunity.
18) Draw the structure of antibody.
19) Write any four differences between exotoxin and endotoxin.
20) Define D- value and Z-value.
21) Write different components of complement fixation test.
22) Write principle of moist heat sterilization.
23) What are sterilization indicators. Give examples of sterilization indicators.
24) Define hypersensitivity. write any two differences between immediate and delayed hypersensitivity.
25) Define pathogenicity and virulence.
26) Define hypersensitivity. Enlist its types.
27) Write mechanism of anaphylaxis.
28) Write mechanism of type II hypersensitivity reaction.
29) Write principle involved in cup –plate method.
30) Write principle involved in cytotoxic reaction.

SUBJECT: PHARMACOLOGY II (BP-405)

Question for 2 marks

1. Define hypertension and classify them.
2. Define congestive cardiac failure
3. What are the treatment of digoxin toxicity?
4. What are the uses of digitalis?
5. Which factors affecting digitalis toxicity?
6. What are loop diuretics? Give clinical uses of furosemide?
7. Give the classification of lipid lowering drugs with example.
8. Explain in brief about the pharmacological treatment for heart failure.
9. What are the pharmacological available anti-platelet drugs?
10. Give the action and function of 5-hydroxy tryptamine.
11. Give reason why folate deficiency causes megaloblastic anemia.
12. Give reason why aspirin is not used in patient with peptic ulcer.
13. Give reason why salicylate therapy is always supported with vit. k.

14. Define anaemia and classify them.
15. Digitalis controls ventricular rate in arterial fibrillation.
16. Why water is called as physiological diuretic?
17. Give reason why Insulin is not given orally.
18. What are the uses of Mannitol?
19. Adverse effect of potassium sparing diuretics
20. What are the uses of anti-coagulants?
21. Define coagulants and it uses.
22. List four drugs used in CCF.
23. Write a short note on adenosine.
24. What are the adverse effect of spironolactone?
25. Give the mechanism of action of furosemide.
26. Define hypolipidaemic drugs
27. Give reason why acetazolamide is used in glaucoma
28. Give reason why thiazides given in diabetes insipidus.
29. List two drugs used in central diabetes insipidus.
30. Define histamine and anti-histamine
31. Mention four drugs used in migrane prophylasix.
32. Define prostaglandin
33. List two selective COX-2 inhibitors.
34. Describe in detail the types of arrhythmias.
35. Mention the preparations and uses of prostaglandins.
36. Enumerate four drugs used in the treatment of anti- angina.
37. Mention four drugs used in glaucoma.
38. Mention four drugs used in anti-arrythmic.

Qustion for 4 marks

1. Define hypertension and classify them.
2. Why propranolol is contraindicated in variant angina? Explain.
3. Types of angina
4. Classification of anti-anginal drugs.
5. Define angina pectoris and anti-anginal drugs.
6. Give the therapeutics uses of anti-angina.
7. Give a combination therapy of nitrates.
8. Define malignant hypertension.
9. Toxicity of digitalis is increased by chlorthiazide.
10. Describe in detail the uses of clonidine.
11. Describe in detail the treatment of hypertension.
12. Define blood pressure and classification of BP for adults.
13. Why clonidine should be stopped suddenly? Explain.
14. What is the rational use of prazosin in benign prostatic hyperplasia?
15. Why amlodipine is preferred to nifedipine in hypertension? Explain.
16. Classification of anti-hypertension drugs.
17. Digitalis is called as “Cardiotonic”.
18. Why diuretics are given along with anti-hypertensive drug.
19. Why Potassium salt is given along with thiazide diuretic.
20. Give the classification of diuretics.

21. Write a short note on anti-platelet drugs.
22. Write a short note on Anti-hyperlipidemics
23. Explain the rational for the use of digoxin in heart failure.
24. Classification of congestive cardiac failure.
25. Give the mechanism of action of acetazolamide.
26. Give the mechanism of action of mannitol.
27. Mannitol in acute congestive glaucoma.
28. Why lignocaine is not effective in supraventricular arrhythmias?
29. Mention two drugs used in ventricular arrhythmias.
30. Write a short note on Potassium-sparing diuretics.
31. Why mannitol is used in cerebral oedema but not in pulmonary oedema.
32. Why chlothalidone and amiloride given in hypertension.
33. Why Furosemide and amiloride given in congestive cardiac failure.
34. Give a detail account on Spironolactone.
35. Give a detail account on Vasopressin.
36. Mention the advantages of second-generation antihistamine.
37. Uses of H_1- antihistamines.
38. What is the rational of using N-acetylcysteine in paracetamol poisoning?
39. Describe in detail the uses and adverse effect of aspirin.
40. Write a short note on anti-hyperlipidemias drugs.
41. Write a short note on anti-platelet drugs.
42. Write a short note on Fibrinolytic agents.
43. Give the therapy of shock.
44. Write a short note on potassium sparing diuretics.
45. What are prostaglandins? How are they synthesized in body?
46. Write a short note on α-Methyldopa
47. Write a short note on Vasodialators
48. Write a short on Prinzmental's angina.
49. Classification of Hypolipidaemic drugs.
50. Drug therapy of Migraine.
51. Why water is called as physiological diuretic.
52. Why antibiotics are given in combination.
53. What are the principal of bioassay?
54. Synthesis of 5-hydroxytriptamine.

Question for 6 marks

1. Give a details account on potassium channel openers.
2. Give a detail on Angiotensin receptor antagonists.
3. Give a detail account on sodium nitroprusside.
4. Write a brief on Minoxidil and Diazoxide
5. Give a detail on Angiotensin receptor antagonists.
6. Give a detail account on calcium channel blockers.
7. Acetazolamide is self- limiting diuretic.
8. Describe in detail the mechanism of action of digitalis.
9. Give a detail account on Procainamide.
10. Give a detail account on Dispyramide.
11. Describe in detail the therapeutic uses and adverse effects of thiazide diuretics.

12. Describe in detail the therapeutic uses and contraindications of mannitol.
13. Name two second- generation antihistamine and explain why they are non sedative.
14. Mention the preparation and uses of prostaglandins.
15. Why aspirin should be stopped one week before elective surgery? Explain.
16. Define angina pectoris and Describe types of angina pectoris.
17. Describe the pathophysiology of congestive heart failure. Explain the mode of action of Digitalis.
18. Write a short note on Minoxidil and Diazoxide.
19. Write a short note on sodium nitroprusside.
20. Write therapeutic uses of nitrates.
21. Describe in detail the uses of calcium channel blockers
22. Write the mechanism of action, pharmacokinetic, adverse effects and uses of Disopyramide.
23. Write a short note on Adenosine.
24. Describe in detail the uses and adverse effect of paracetamol.
25. Write a short note on Acute paracetamol poisoning.
26. Define Bioassay and types of bioassay.
27. Write a short note on cyproheptadine and clozapine.
28. State the difference between heparin and warfarin.
29. Explain the drug interation between warfarin and rifampicin.
30. Write a short note on Heparin and Fibrinolytics.

Question for 8 marks

1. Explain the rational of use of nitroglycerin in acute angina.
2. Mention two drugs used in cyanide poisoning with the rationale for their use.
3. Mention one drugs used in acute angina and explain the pharmacological basis for its use.
4. Write briefly on (i) Sodium nitroprusside (ii) Prazosin
5. Write briefly on (i) α-Methyldopa (ii) Captopril
6. Give a detail account on four drugs used in CCF
7. Explain the rational for the use of digoxin in heart failure.
8. Give the pharmacological basis for the use of digoxin in artial fibrillation.
9. Describe the pathophysiology of congestive heart failure. Explain the mode of action of digitalis.
10. Give a detail account on class-III Anti-arrhythmic drugs.
11. Give a details account on Verapamil.
12. What are serotonine and give its pharmacological actions.
13. Write a short note on Mexiletine and Phenytoin.
14. Explain pharmacological action, Pharmacokinetics, adverse effects and uses of Lignocaine.
15. Write a brief account on Dopamine and Dobutamine.
16. What are Coagulants and anti-Coagulants. Give Pharmacological account of Heparin?
17. Write a short note on Terlipressin and Felypressin.
18. Give the pharmacological basis for the use of digoxin in artial fibrillation.
19. What is the rationale for the use of vasodilators in congestive cardiac failure?
20. Classify anti-arrythmic drugs. Explain the rationale of using lignocaine in ventricular arrhythmias.
21. Mention one drug used in PSVT and explain the mechanism of action of that drug.
22. Mention two drugs used in A-V block and explain the rationale for their use.
23. Enumerate the hypolipidaemic drugs. Explain the mechanism of action and adverse effect of statins.
24. Mention the pharmacological basis for the combined use of statins and ezetimide

25. Write the mechanism of action, pharmacokinetic, adverse effects and uses of Lignocaine.
26. Write a short on Esmolol and Sotalol.
27. Give a detail account on Class IV: Anti-arrhythmic drugs.
28. Write briefly on: (any two)
    i) HMG-COA reductase inhibitors
    ii) Cholestyramine
    iii) Ezetimide
29. Explain the therapeutic uses and adverse effect of H_1- antihistamines.
30. Write detail about Selective COX-2 inhibitors.
31. Write briefly on (i) Therapeutic uses of digoxin (ii) Treatment of digoxin toxicity
32. What are haematinics ? Write pharmacological details of folic acid.
33. What are haematinics ? Write pharmacological details of Vitamin B_{12}
34. Classify anticoagulants with examples, Give pharmacological account of Heparin and Warfarin.
35. Write short note on :- (any two)
    i) Drug therapy of shock ii) Loop Diuretic iii) Ca++ Channel blockers

36. Write short note on:- (any two)
    i) Drug therapy of shock I i) Prostaglandin iii) H_2- Antihistamine
37. Write short note on:- (any two)
    i) Nitroglycerin ii) Dihydro pyridines iii) Potassium channel openers
38. Write short note on :- (any two)
    i) Acetazolamide ii) Captopril iii) Felypressin
39. Short note on Sumatriptan and Cyproheptadine.
40. Clinical uses of $NSAID_S$
41. Write briefly on : (any two)
    i) Ibuprofen ii) Diclofenac iii) Selective COX-2 inhibitors.
42. Write brief on: (any two)
    i) Adenosine ii) Esmolol iii) Amiodarone

Question for 10 marks

1. Mention one drug used in angina pectoris and Explain the mechanism of action, adverse effects and therapeutic uses of this drug.
2. Classify antihypertensive drugs and write the mechanism of action of each class.
3. Comment briefly on the pathophysiology of arrhythmias, explain how they corrected by various antiarrhythmic drugs.
4. What are Congestive heart failure (CHF)? Write pathophysiology of pharmacotherapy of CHF.

Question for 16 marks

1. Classify the anti-angina drugs. Explain the mechanism of action, pharmacokinetics, adverse effects and the therapeutic uses of organic nitrates.
2. Classify antihypertensive drugs. Explain the mechanism of action and adverse effects of centrally acting sympatholytics.
3. Discuss the mechanism of action, uses, adverse effects and mention a contraindication for the use of ACE inhibitors.
4. Enumerate four drugs used in the treatment of hypertensive crisis with their routes of administration.

5. Mention two drugs used in hypertension emergency and outline their mechanism of action.
6. What is a glycoside? Explain the therapeutics useful pharmacological action digoxin and mention its adverse effects.
7. Explain the mechanism of action, therapeutic uses and adverse effects of digoxin.
8. Mention different groups of drugs used in congestive cardiac failure and explain their mechanism of action.
9. Classify diuretics. Explain the mechanism of action, therapeutics uses and adverse effects of loop diuretics.
10. Explain the mechanism of action, therapeutics uses and adverse effects of osmotic diuretics.
11. Write the mechanism of action, therapeutics uses and adverse effects of carbonic anhydrase inhibitors diuretics.
12. Classify diuretics. Explain the mechanism of action, therapeutics uses and adverse effects of thiazides diuretics.
13. Classify diuretics. Explain the mechanism of action, therapeutics uses and adverse effects of potassium -sparing diuretics.
14. Classify anti-diuretics. Explain the mechanism of action, therapeutics uses and adverse effects of vasopressin diuretics.
15. Discuss the pharmacological action, Pharmacokinetics, adverse effects, therapeutic uses and contraindication of Quinidine.
16. Explain the pharmacological actions, pharmacokinetics, adverse effect and uses of H_1-antihistamines.
17. Explain the pharmacological actions adverse effect and therapeutic uses of prostaglandin.
18. Classify non-steroidal anti-inflammatory drugs. Explain the therapeutic useful actions of aspirin and mention its adverse effects.
19. What is cardiac arrhythmias ? Write the mechanism of action of each class of antiarrythmic drug.
20. What are the causative factors of hypertension ? Classify antihypertensive agents. Mention mechanism of action of each class with their side effects.
21. Classify anticoagulants. Explain the mechanism of action, therapeutic uses and adverse effects of oral anticoagulants.
22. Write briefly on:
    i) Antifibrinolytics ii) Antiplatelet drugs
    iii) Trearment of acute iron poisoning iv) Drug therapy of pernicious anaemia
23. Write briefly on:
    i) Obstetrical uses of prostaglandin
    ii) Sumatriptan
    iii) Cycloheptadine
    iv) 5-HT-antagonists.

SUBJECT: PHARMACEUTICAL MANAGEMENT (BP-406)

2 Marks Questions

1. Define the term ‘Pharmaceutical Management’.
2. Elaborate middle level management with suitable figure.
3. What type of activities should staffing consist?
4. Why is it not advisable to open a drug store near a traffic signal?
5. Write two advantages of opening a drugstore in a rural area.

6. Mention the main disadvantages of opening a drug store in a big city.
7. What is the minimum area require to open a drug store?
8. Write the minimum space requires to start a wholesale drug store.
9. Write in brief about 'Layout of a drug store'.
10. What is the minimum qualification require to open a retail drug store?
11. How much area is required to open the retail drug store and a wholesale drug store?
12. What type of arrangement should a drug store require to store medicine?
13. Why is it not advisable to open a drug store in busy shopping centers?
14. How is it beneficial to open a drug store in developing area?
15. How is it advantageous to open a drug store in a business locality?
16. Define the term 'Inventory'.
17. Name the various techniques used for inventory control.
18. Write the objective of inventory control.
19. What is the full form of ABC?
20. What are the advantages of ABC analysis?
21. What are different methods of determination of EOQ?
22. What is the full form of EOQ?
23. Explain the term 'Perpetual Inventory System'.
24. What are 'Obsolete Items'?
25. How is bin card helpful in controlling inventory?
26. Name the different types of middleman in- between producer and consumer.
27. Name the different channels of distribution for various types of commodities.
28. Classify the different types of wholesalers.
29. What do you understand by the term 'mail order Business'?
30. Define the term 'Hire-purchase trade'.
31. Why 'Retail Department Stores' are becoming popular in these days?
32. Explain the term 'Consumers Cooperative store'.
33. What is GAAP?
34. What does the term 'Accounting Concept' mean?
35. Name the various accounting concepts which are generally used.
36. What is the other name of Accounting Period Concept?
37. What are the limitations of money measurement concept?
38. What is the important feature of cost concept?
39. Define the term 'Book-Keeping'
40. Define Personal account, Real account and Nominal account.
41. Name the books of original entry.
42. What is journal?
43. Draw the format of general journal.
44. Name the various types of special journals.
45. Draw the format of single column cash book
46. Write the objective of sales promotion.
47. Name different techniques of sales promotion.
48. Name the various steps in the selling process.
49. Define the term 'Sales Promotion'.
50. Define the term 'Advertising'.
51. What are the objectives of advertising?
52. Explain the term 'Market Research'.
53. Name the various methods used for advertising the pharmaceutical products.

54. Name the various sources of market research.
55. What are the various methods of market research?
56. Define the term ‘Recruitment’.
57. Name the different sources of recruitment.
58. What are the different methods of recruitment?
59. Name the various steps in the selection of a pharmacist.
60. Explain the term ‘Training’.
61. Name different forms of compensation plan which can be given to the employees.

4 Marks Questions

1. Write in short about levels of pharmaceutical management.
2. What do you mean by ‘Coordinating’ in pharmaceutical management?
3. Write in brief about ‘Controlling’ in pharmaceutical management.
4. Write a short note on ‘Directing’ in pharmaceutical management.
5. What do you mean by ‘Organizing’ in pharmaceutical management?
6. Give an account on ‘Planning’ in pharmaceutical management.
7. What do you mean by ‘Staffing’ in pharmaceutical management?
8. Write in detail the importance of management.
9. What conditions must be satisfied by well coordinated enterprises?
10. What are merits and demerits of opening a drug store in rural or small towns?
11. Write three factors responsible for the success of a drug store.
12. Give the main objectives of layout design of a drug store.
13. Write note on ‘Acquisition of premises for a drug store’.
14. What are the objectives of layout design?
15. Draw and explain an ideal drug store design.
16. What types of documents are required for renewal of a retail sale license?
17. Which factors are to be considered to establish a new drug store in metropolitan cities?
18. Give examples of some drugs require separate license for its retail sale and why?
19. Write in tabular form the A type, B type and C type of ABC analysis.
20. Describe the various functions of inventory control.
21. Give a brief account on ABC analysis.
22. What are the main advantages of ABC Analysis?
23. Define ‘bin card’. Write its usefulness in perpetual Inventory System.
24. Give the various methods of finding EOQ.
25. What are the main features of perpetual Inventory System of Inventory control?
26. What are the advantages of Perpetual Inventory System?
27. Write in detail about the material building and its use
28. Write the different types of ‘Mail order businesses’.
29. Explain the term ‘Multiple shops’
30. How will you classify different types of retailers?
31. Name the three basis which are used to determine the period in which revenue is realized.
32. Explain the meaning of double entry book-keeping system.
33. Write the basic principle of double entry book-keeping system.
34. Explain the meaning of account
35. Explain the meaning of ‘Cash book’.
36. What do you understand by ‘petty cash book’?

37. What is the purpose of ledger?
38. What is the significance of ledger folio?
39. Explain the meaning of posting.
40. What is the significance of 'Contra Entry'?
41. How is balancing of an account done?
42. What is the importance of petty cash book in business?
43. What is contra entry? How is it distinguished in the cash book form other entries?
44. Write the advantages of salesmanship.
45. Write the personal qualities of a good salesman.
46. Distinguish between advertising and publicity.
47. What are the main advantages of advertising?
48. Write the essential features of good advertisement.
49. Write the disadvantages of advertising.
50. State the main advantages of market research.
51. Differentiate between market research and marketing research.
52. Write the advantages of personal contact or detailing method of advertising the product.
53. Write in brief about primary sources of marketing research.
54. What are the secondary sources of market research?
55. Differentiate between the advertisement and sales promotion.
56. What are the sources of market research?
57. What should be the social quality of good salesman?
58. What are the conditions under which ethical pharmaceutical products advertised in India?
59. What is the significance of a selection?
60. Write in brief about the evaluation of a pharmacist.

8 Marks Questions

1. Describe various levels of management.
2. Write in brief about functions of pharmaceutical management.
3. Write short note on legal aspects of a drug store.
4. What do you mean by drug house management? Which types of sites are suitable for opening of drug store?
5. Write a detail note on 'The site for a drug store'.
6. What are the objectives of layout design?
7. What are the minimum requirements for opening a wholesale or a retail drug store?
8. What types of documents are required to open a retail drug store?
9. What types of documents are required for renewal of wholesale drug store?
10. What the main advantages of perpetual Inventory system?
11. Differentiate between slow moving, dormant material and obsolete items.
12. Write in brief about 'Maximum Stock Level'.
13. Write formula to find minimum stock level of inventory.
14. How is the re-order level of inventory calculated?
15. Give a detail account on effective purchase procedure.
16. What are the advantages of I-O ratio analysis?
17. How are the purchase procedures effective in Inventory Control?
18. Write in brief about a wholesaler.
19. Mention the various services rendered by the wholesaler to the manufacturer of the business.

20. How the wholesaler does help a retailer in his business?
21. Write the salient features of retailer.
22. What do you know about the merchant middleman?
23. Mention the various services provided by the retailers to wholesalers / producers and to the consumers.
24. Write in brief about the multiplex shops.
25. What are the main advantages and disadvantages of multiple shops?
26. How mail order business is helpful to customers?
27. Differentiate between retail departmental store and multiple shops.
28. What are the changes required in retail trade to attract the customers?
29. What is the difference between 'Book Keeping' and 'Accountancy'?
30. What is the basic principle of double entry book keeping system?
31. Explain the different types of accounts with examples.
32. Explain the rule of debit and credit.
33. What are the basic purposes of source documents?
34. What is the difference between journal and ledger?
35. What is the purpose of debit note and credit note? When they are used?
36. What is the purpose of providing L. F. in the journal and J. F. in the ledger account?
37. How is the recruitment of a pharmacist done?
38. What is the purpose of giving training to newly recruited pharmacist?
39. Discuss the various topics which should be covered during the training of pharmacist.
40. What are the main points on which an employer may evaluate his employee?

10 Marks Questions

1. Give a detail account on levels and importance of pharmaceutical management.
2. Write in detail about the importance and levels of pharmaceutical management
3. What are the legal aspects of a drug store?
4. Give a detail account on 'Layout of a drug design'.
5. Write in detail about the site for a drug store and acquisition of premise for a drug store.
6. What types of documents are required to open a wholesale drug store (for new license)?
7. What do you know about EOQ? Discuss the various methods for determining the EOQ.
8. What is perpetual inventory system? How is this helpful in Inventory control? Write the advantages of this system.
9. Write in detail about various levels of inventory which are required to be maintained to control it.
10. Write any two methods for determination of Economic Order Quality.
11. What do you mean by store ledger, continuous stock-taking with detail advantages of Perpetual Inventory System?
12. Write a detail note on review of slow and non-moving items.
13. Write a detail note on Input-Output ratio analysis.
14. Describe in detail about various levels of material.
15. Write in detail about retail department store. Mention its merits and demerits
16. Write the main features of multiple shops. Write its merits and demerits.
17. Discuss in detail a mail order business. Mention its advantages and disadvantages.
18. Distinguish between the following-
    a. Multiple shops and departmental store.
    b. Direct selling and mail order selling.

19. What are books of original entry? Why is a journal subdivided? Give a specimen of general journal with four imaginary entries.
20. What is a special journal? Give a specimen of such a journal showing at least five entries.
21. What is the meaning and utility of a ledger? How will you make posting from a journal and cash book to a ledger?
22. Write short notes on-
    a. Book-keeping
    b. Purchases journal
    c. Purchases returns journals
    d. Petty cash book.
23. Write short notes on-
    a. Sales journal
    b. Sales returns journal
    c. Credit note
    d. Debit note.
24. What is personal selling? Discuss the various steps in a sales process. What are the advantages of salesmanship?
25. Discuss the various methods used for advertising pharmaceutical products. Mention the essential features of good advertisement.
26. What do you understand by 'Market research'? how is it conducted? What benefits are derived from it?
27. Explain the qualities of a good salesman.
28. Explain the term market research. What are the various aspects generally taken into consideration during a market research? What are the advantages of market research?
29. Define selection. What steps are involved in selection of employee?
30. Discuss the various plans of compensating an efficient employee to continue with his job.

16 Marks Questions

1. Give a detail account on functions of management. Give the importance of management.
2. Define pharmaceutical management. Describe various functions of management.
3. Write in detail about the functions of pharmaceutical management.
4. Give a detail account on functions of management. Explain the term pharmaceutical management.
5. Discuss the general factors to be considered while selecting a site for a drug store.
6. Explain the procedure to be adopted for the acquisition of premises for a drug store. Draw an ideal layout design of a drug store.
7. Discuss the various legal requirements to be fulfilled to open a retail drug store.
8. Write the various documents needed to-
    a. Open a new retail drug store.
    b. Renewal of the license to sale drug on retail.
    c. Open a wholesale drug store.
    d. Renewal of the license to sale drug on wholesale.
9. Define the term 'Inventory control'. Write the different techniques which are used to control the inventories. Describe in detail about economic order quantity technique of inventory control.
10. Explain the term 'Inventory Control'. What are its functions? Discuss the ABC analysis. Write the main difference between A, B, C types of Inventories.
11. Write in detail about EOQ? Discuss the various methods used for determination the EOQ.

12. Write short notes on the following-
    a. Maximum stock level
    b. Minimum stock level
    c. Bin card
    d. Input-Output Ratio
    e. Recorder level
    f. Danger level
13. Enumerate the principle channels of distribution of goods from producers to consumers. Describe in details various types of middleman.
14. Classify different types of middleman who are involved in the distribution of goods from the producer to consumer. Write in brief about each such middleman.
15. The wholesaler is an intermediary between the manufacturer and retailer. Describe the way in which he renders services to them.
16. State the conditions under which it is advantageous for the producer to sell goods directly to the consumer.
17. Explain the term 'wholesalers'. Write the main functions which are generally performed by the wholesalers.
18. Define the term 'Retailers'. Explain the general functions which are normally performed by him and the specified functions which he performs to render services to wholesaler / producer and consumers.
19. Explain clearly the meaning and organization of
    a. Multiple shops
    b. Departmental store
    c. Mail order business.
20. Define the term 'Accounting Concept'. How does it differ from 'Accounting Convention'? Explain the entity concept and dual aspect concept.
21. Write short notes on-
    a. Matching concept
    b. Money measurement concept
    c. Cost concept
    d. Revenue realization concept
    e. Accounting period concept
22. Discuss the following-
    a. Ledger
    b. Journal
    c. Cash book
    d. Book-keeping
23. What is petty cash book? How will you maintain the petty cash book? Explain it by giving a format of petty cash book.
24. What do you know about Book-keeping? How does it differ from accounting? What are the basic principles of double entry book keeping?
25. Explain the meaning and utility of cash book. What are different types of cash book? Describe each type of cash book.
26. Explain the meaning of an account. What are the different types of account? Explain each type of account with suitable examples.
27. Explain the term sales promotion. Discuss the various techniques of sales promotion. Write the objectives of sales promotion.
28. What various methods would you suggest for an effective sales promotion campaign for your firm's product which has recently shown some decline in sales?

29. Define the term ‘Advertising’. Discuss the various media for advertising. Write the advantages and disadvantages of advertising.
30. Explain the term ‘Market Research’. How does it differ from marketing research? Write in brief the various sources of marketing research.
31. What do you know about ‘Market Research’? Discuss the various methods of market research. What are the advantages of market research?
32. Write a note on-
    a. Salesmanship
    b. Advertising
    c. Qualities of salesman
    d. Essential features of good advertisement
    e. Market research.
33. What is recruitment? What are the different methods of recruitment of a pharmacist? Write the various steps involved in the selection of a person as a pharmacist.
34. Define the term ‘Training’. Why is it necessary? Write the various subjects which are required to be covered in training.

B. PHARM. 3RD SEMESTER VI

SUBJECT: PHARMACEUTICAL ENGINEERING II (BP-601)

16 Marks Questions

1. Define corrosion explain types of corrosion?
2. Define corrosion give its applications explain theories of corrosion and factors influencing Corrosion?
3. Explain factors influencing corrosion and give prevention and control of corrosion?
4. What is corrosion? Name the explain various types of corrosion. How can corrosion be Prevented?
5. Discuss various types of corrosion and suggest the methods to tackle the same in poetical Industries?
6. Explain term multiple effect evaporate on capacity and evaporator capacity how many Effect. Generally go into a multiple effect evaporator.
7. Define evaporation, explain factors influencing evaporation and explain theory of Evaporation?
8. Define evaporation, classify evaporator, explain horizontal tube evaporator vertical tube evaporator and climbing film evaporator?
9. Define drying give its application explain theory of draying classify dryers and explain fluid bed dryer?
10. Explain tray dryer fluid bed dryer and freeze dryer?
11. Discuss the Mier's super saturation theory of crystallization. What are the limitation of Miers theory.?
12. Define crystallization, explain its applications characteristics of crystals, and theory of crystallization.?
13. Define crystallization, crystal form and Swenson walker crystallizer, Krystal crystallizer?.
14. Define crystallization application explain theory of crystallization and explain vacuum crystallizer?
15. Explain the mechanisms of heat flow?
16. Explain tubular heat exchanger, multipass heater?.
17. Define humidification dehumidification? give mechanism of its and give its application?

8 Marks Questions

18. Explain prevention and control of corrosion?
19. Explain theory of corrosion and factors influencing corrosion?
20. Explain types of corrosion?
21. Classify evaporators describe construction and working of film evaporator?
22. How do film evaporator function? elaborate the answer a neat sketch of on such evaporator list merits and demerits of film evaporator system?
23. What do you understand by multiple effect evaporators? Describe one such evaporator. How do you feed such evaporator?
24. Explain static bed dryers.?
25. Explain construction, operational details of freeze dryer. Describe its applications in pharmacy?

26. Describe concept of spray drying. Describe the specific advantages of spray dried products over drum dried material. Also list the pharmaceutical applications?
27. How do you classify dryness? Describe in detail the constant rate and falling rate periods. note on a critical moisture content?
28. Discuss the construction, working, advantaging and disadvantages of spray dryer?
29. Explain theory behind drying and rate of drying suitable graphs?.
30. Explain construction, operational details of freeze Dryer describe its applications in pharmacy?
31. Discuss the Mier's super saturation theory of crystallization. What are the limitation of Mier'stheory ?
32. Explain the principle, construction, working, advantages of vacuum crystallizer?.
33. Giving heat diagram, describe the constriction and working of Krystal crystallizer. Write its advantages and applications?.
34. Draw neat labeled diagram of Swenson crystallizer. Discuss construction, working advantages and disadvantages?.
35. Describe theory of crystallization and caking of crystals?.
36. Define an equation for heat transmission through a circular pipe, from Fourier's law?
37. Describe construction, operation, advantages and disadvantages of multi pass heater?
38. With the help of near diagram, explain the concept of film and overall heat transfer

coefficients in forced convection. Deduce relevance mathematical equations?

39. Define humidification and dehumidification and explain its mechanism?.
40. Define refrigeration, give its application. Explain refrigerants and give its principle?
41. Define air conditioner give its application and explain air conditioner?

4 Marks Questions

42. What is corrosion? Mention the factors that influence rate of corrosion?.
43. Explain measure to suggest to check the problem of corrosion?
44. Write electrochemical theory of corrosion?
45. Describe biological corrosion & suggest the preventive measures?
46. Describe the mechanism of corrosion of iron?
47. Define corrosion give its causes. Classify corrosion?
48. Explain fluid corrosion general?
49. Explain fluid corrosion localized?
50. Explain fluid corrosion structural & biological?
51. Explain cathode protection & anodic protection?
52. Define corrosion & give its applications?
53. Explain effect of temp & PH of solution on corrosion?
54. Give the applications of protective linings &coatings respect to corrosion control suitable example?.
55. Elaborate the concept of multiple effect evaporation. What specific advantages does it offer?
56. Describe the construction & working of film evaporator of any one type?
57. Explain construction & working of forced circulator evaporator?.
58. Explain theory of evaporation?
59. Explain evaporating pan?
60. Explain horizontal tube evaporator?
61. Explain vertical tube evaporator?

62. Explain climbing film evaporator?
63. Explain falling film evaporator?
64. Explain forced circulation evaporator?
65. Define evaporator &distinguish other heat processes & give application of evaporation?
66. Explain factors influencing evaporation?
67. Define critical moisture content & equilibrium moisture content?
68. Short note on fluidized bed dryer?
69. Explain theory of drying?
70. Explain tray dryer?
71. Short note on fluidized bed dryer
72. Short Note on freeze dryer?
73. Short note on vacuum dryer?
74. Short Note drum dryer?
75. Explain mechanism of drying?
76. Recommend a suitable dryer for drying the following substances & substantiate your answer at least with two reasons
    1. Liver extract
    2. Granular solids
    3. Pasty materials
    4. Granules of heat sensitive drugs
    5. Vitamin B complex granules
    6. Colloidal solutions
77. Describe the drying rate curve for nonporous granular solids?
78. Describe the principle c the help of a labeled?
79. Diagram of fluidized bed dryer?
80. List pharmaceutical applications of freeze drying process. Give salient features of the process?.
81. Explain construction & working of fluidized bed dryer?.
82. Explain principle of spray drying c suitable labeled diagram?
83. Describe the drying rate curve. Explain its application?
84. Explain principle working of drum dryer?
85. Compare spray drying and vacuum dryer?
86. Explain the factors to be considered in a the selection of suitable dryer?
87. Explain operation & applications of fluidized bed dryer?
88. Describe the function of drum dryer & its uses?
89. Describe the rate drying curve for crude fibrous drug
90. Explain principle of froze drying. What are its applications in pharmacy?
91. Compare the operation of spray dryer & tray dryer?
92. Describe the concept of spray dryer. What are its advantages? compares spray drying and other methods of drying?
93. Describe the working of agitated bathecrystallizer?
94. What is caking of crystals? list the factors attesting & preventive measures of caking?
95. Describe salient features of vacuum crystallizer?
96. Describe different methods by which super saturation can be brought about?
97. Draw the solubility curves & explain its relevance in crystallization?
98. Describe the operation of suitable crystallizer to produce large crystals?
99. What are different form of crystals?
100. What are the conditions to be taken during crystallization to obtain large sized crystals?
101. Describe how relation & crystals growth take place during crystallization?

102. What are the pharmaceutical applications of crystallization?
103. Compare & contrast heat transmission following current & paneled current teed techniques c relevant equations?
104. Derive an equation for heat transfer by conduction through compound resistances in series?
105. Draw a neat & labeled diagram of a shell & tube heat exchanger & explain its construction?
106. Describe finned tube heat exchanger &its specifies advantages?
107. Describe the conduction of heat through circular pipes. Give suitable equation for rate of heat transfer & explain terms?
108. Describe mechanism of conductions?
109. Fourier law of heat transfer?
110. Describe important features of humidity charts?
111. Describe working of refrigerator?
112. What does the term dehumidificationmean? write note on application of dehumidification?
113. With a neat diagram. Explain principle & working of air conditioner?
114. Give application of humidifier & dehumidifier?
115. Explain caking phenomenon of crystal?

2 Marks Questions

116. Explain the term pitting corrosion & galvanic corrosion?
117. Give the application of protective lining & coating c respect to corrosion c suitable example?
118. What is role of plastic was hers in corrosion of metals?
119. How oxide films are formed?what are its advantages?
120. Highlight role of oxygen in corrosion of metals?
121. Define corrosion, enlist its types?
122. Define corrosion give its applications?
123. Give corrosion reaction between metals?
124. Enlist factors influencing corrosion?
125. Explain fluid corrosion localized?
126. Explain structural corrosion?
127. Explain biological corrosion?
128. Explain cathodic corrosion?
129. Explain anodic corrosion?
130. Enlist prevention & control measures for corrosion?
131. Explain term evaporator capacity?
132. Define evaporation in terms of capacity & economy as applied to evaporator practice?
133. Explain construction of calendriagive its uses?
134. Define evaporation give its application?
135. Distinguish between evaporation & other heat process?
136. Enlist factors influencing evaporation?
137. Classify evaporators & define evaporation?
138. Give principle & uses of steam jacketed kettle?
139. Draw & label vertical tube evaporator?
140. Draw & label vertical tube evaporator?
141. Draw & label climbing film evaporator?
142. Draw & label falling film evaporator?
143. Draw & label forced circulation evaporator?
144. Draw & label multiple effect evaporator?

145. Distinguish between drying & evaporation?
146. Define critical moisture content & equilibrium moisture content?
147. Define bound moisture & free moisture content?
148. Mention factors affecting constant drying rate?
149. Classify dryer & give suitable examples?
150. List the critical conditions for drying of various substances?
151. Define drying give its importance in formulation of dosage form?
152. Explain how agitator drying are useful to dry pasty sluggy materials?
153. How do you obtain rate of drying curve for a given drying operation? give its applications?
154. Define drying, equilibrium moisture content & free moisture content?
155. Define drying give its application?
156. Give the measurement of EMC?
157. Explain rate relationship of drying?
158. Draw & label tray dryer?
159. Draw & label spray dryer?
160. Draw & label fluidized bed dryer?
161. Draw & label freeze dryer?
162. Draw & label vacuum dryer?
163. Draw & label drum dryer?
164. Define crystal lattice & crystal habit?
165. Enumerate the characteristics of crystals?
166. Define crystal & critical humidity?
167. List the characteristics of heat transfer by radiation?
168. What are grey bodies? how do they radiates heat?
169. What are overall heat transfer coefficient& individual film coefficient?
170. Explain the term black body & grey body?
171. Explain overall heat transfer coefficient & individual film coefficient?
172. Define conductivity with suitable example?
173. State & explain Fourier's law of heat transmission with example?
174. State & explain Stefan Boltzmann's law of heat radiation?
175. What is mean by overall heat transfer coefficient? What is its significance?
176. Differentiate bath heat interchanger & heat exchanger?
177. What are humidity charts? Write their uses in pharmacy?
178. Draw humidity chart & give its significance?
179. Define the term humidity & dew point?
180. Write utility of humidity charts?
181. Differentiate bath humidity & relative humidity?
182. What are the applications of humidification & dehumidification?
183. Explain principles of dehumidification?
184. Explain principles of humidification?
185. Differentiate dry bulb temp & wet bulb temp?
186. What are applications of air conditioner?

SUBJECT: PHARMACEUTICAL MEDICINAL CHEMISTRY-I (BP-602)

Question carries 8 marks

1. What are drugs? Explain various routes of drug administration?
2. What is biological membrane? Give its structure and enlist its functions.
3. Explain the different processes of drug absorption?
4. What are drug receptor interactions? Explain different types of binding forces exist in drug receptor interaction with examples?
5. What are receptors? Discuss various receptors and receptor theories with examples.
6. Define the term receptors? Enlist different types. Give an illustrated account of Occupation theory.
7. Discuss the factors affecting on drug receptor interaction to exert the desired pharmacological activity.
8. Give an account on forces involved in drug receptor interactions.
9. Explain various forces involved in drug receptor interaction. Write about spare receptor and silent receptors.
10. Discuss the importance of hydrogen bonding, partition coefficient and complexation in relation to biological activity?
11. Justify, the compound having similar steric, electronic and solubility characteristics can be interchanges the drug activity.
12. Give a brief account of applications of 'Ferguson principle'.
13. Enumerate the various physicochemical properties that modulate biological activity and explain any two of them in detail.
14. What do you mean by Bioisosterism? Discuss in detail recent bioisosteric applications in medicinal chemistry.
15. What is prodrug? And explain in detail why it is required to design?
16. What is prodrug? Explain with examples how this concept is useful in modifying the pharmacokinetics properties of medicinal agents.
17. What principles are utilized in prodrug design for taste masking and odor improvement of drugs?
18. Classify the chemical pathways of drug metabolism.
19. Explain in detail about factors affecting on drug metabolism
20. Write short notes on microsomal drug metabolizing reaction with examples?
21. What are the effects of inducers and inhibitors on drug metabolism?
22. What are phase I reactions? Explain in detail about phase I reaction metabolism with the help of suitable examples..
23. What are different pathways by which drug metabolism occurs? Explain conjugation reaction giving suitable examples.
24. Explain in detail about factors influencing biotransformation and conjugation reaction.
25. Define metabolic biotransformation and explain in detail its reactions?
26. Give an account of:
    a. Forces involved in drug receptor interaction
    b. Oxidation-reduction potential and biological action
27. What are general anesthetics? Give an account of them?
28. What are general anesthetics? Classify them and describe them briefly? Enumerate various characteristic features of ideal general anesthetics?
29. What are sedative hypnotics? Give the chemical classification of sedative hypnotics with structures of at least two drugs from each class.
30. Give the structure activity relationship of Hydantoin and Oxazolidine-2,4-diones as anticonvulsants.

31. Outline the general scheme of synthesis of barbiturate? Discuss the SAR of barbiturates.
32. Classify anticonvulsant drug on the basis of chemical structure. Show the common structural features shared by them. Outline synthesis of 5,5-diphenyl hydantoin.
33. What are non-barbiturates? Give the classification with structures and outline the synthesis of methyprylone.
34. Write the SAR and Mode of action of barbiturates?
35. Write the SAR of benzodiazepines as sedative hypnotics and outline its general scheme of synthesis
36. Give structure, IUPAC name and mode of action of: (any two)
    a) Chlorpromazine b) Phenylbutazone c) Lidocaine
37. Write the mode of action, uses and synthesis of Phenytoin and valproic acid.
38. Classify sedative and hypnotics drugs. Write SAR of barbiturate and give the synthesis of any one barbiturate.
39. Classify barbiturates based on their duration of action as sedative hypnotics agents. Give the SAR of barbiturates.
40. Give an account on malonyl urea derivatives used as sedatives. Outline the synthesis and clinical uses of phenobarbitone and thiopentone.
41. Give an account of non-barbiturate used as sedative hypnotics.
42. Draw the structure, Give IUPAC name and medicinal uses of:
    a. Phenobarbitone
    b. Diazepam
43. Write notes on: (any two)
    a. Mechanism of action of local anesthetics
    b. Mechanism of action of sedative hypnotics
    c. Mechanism of action of neuroleptics
44. Discuss the chemistry of barbiturates as anticonvulsant. Outline synthesis of thiopental sodium.
45. Write the synthesis and SAR of phenothiazine.
46. Give the synthesis and clinical uses of Diazepam and Pentobarbitone
47. Bring out the similarities in the chemistry of different classes of anticonvulsant drugs?
48. Describe the synthesis and clinical uses of phenytoin and carbamazepine.
49. Give the synthesis of : 1. Diazepam 2. Carbamazepine
50. Write the mode of action and synthesis of: 1. Imipramine 2. Haloperidol
51. What are hydantoin? Write about the SAR of hydantoins.
52. Write note on butyrophenone antipsychotics? Outline the synthesis of haloperidol.
53. Write the mode of action and synthesis of :
    a. Imipramine
    b. Haloperidol
54. What are major tranquillizers? Classify them with examples and discuss their mode of action?
55. Discuss with suitable examples the SAR of phenothiazines?
56. Mono-amino oxidase inhibitors as antidepressants explain it with suitable examples.
57. Write a note on antidepressants?
58. What are antidepressants? Briefly write the mode of action of tricyclic antidepressants and MAO inhibitors?
59. What are antipsychotic agents? Classify them with examples and write briefly their mode of action?
60. Give SAR of tricyclic antidepressants. Outline the synthesis of imipramine.
61. Enumerate the different groups of drugs used in the treatment of depressive disorders?
62. Give a brief account of butyrophenone as antipsychotics?
63. Give a brief account of benzodiazepines as sedative hypnotics?
64. Write a note on tricyclic antidepressant?

65. Write a brief account of drugs used in Parkinsons Disease.
66. Explain the synthesis, storage, release and metabolism of dopamine.
67. Write structure, IUPAC name, mode of action and uses of:
    a. Diazepam b. phenytoin
68. Write notes on local anesthetics?
69. What are general anesthetics? Classify them. Give a detailed account on drugs used as 'General anesthetics'.
70. Write the structure, mode of action and uses of Lignocaine and Benzocaine?
71. Write the synthesis and mode of action of procaine.
72. What are local anesthetics? Explain how the cocaine alkaloid acted as lead structure for the development of local anesthetic agent?
73. What are local anesthetics? Give a detailed account of amide type of local anesthetics?
74. Define local anesthetics, give its SAR and synthesis of lidocaine.
75. Differentiate between (any two)
    a. Sedative and hypnotics
    b. General anesthetics and Local anesthetics
    c. Barbiturate and benzodiazepines
76. Write in brief about antacids and antidiarrheal.
77. Write a note on emetics and antiemetics.

Question carries 16 marks

78. What is absorption? Explain in brief various processes by which drug crosses natural barriers.
79. a) Write a note on active transport. (10M)
    b) Differentiate between (06M)
    i) Phagocytosis and pinocytosis ii) Uphill and downhill diffusion
80. What are receptors? Discuss various receptors and receptor theories with examples?
81. Define absorption? Give a detail account of various processes of drug absorption.
82. Discuss the influence of following in biological activity.
    a) Bioisosterism c) Hydrogen bonding
    b) Ionization d) Sterioisomerism in biological activity
83. With the help of appropriate examples, elucidate how different physicochemical properties of drug molecules are related to their biological activity?
84. a) What are physicochemical properties of drugs? Classify it, and add a note on ferguson principle. (06M)
    b) Describe Ionization and Complexation. (10M)
85. Explain in detail the influence of following on biological action
    a) Ionization c) Surface activity
    b) Complexation d) Oxidation-reduction potential
86. What are different physicochemical properties of drug through which biological action and activity of drug is determined?
87. "Biological activity of a drug does not simply depend on its chemical structure but also on its physicochemical properties." Illustrate the above statement with suitable examples?
88. What is Bioisosterism? How is it useful in the design of drugs? Discuss citing suitable examples how complexation, partition coefficient, solubility affect biological activity of drugs?
89. Write a brief account on various physicochemical parameters and drug action.
90. What is drug metabolism? Elaborate various processes through which drug gets metabolized

91. Explain in detail, how the conjugation reactions can increase the water solubility and excretion of drug metabolite? (12M)
92. Give a detail account on drug metabolism studies. Write in short about how it can be helpful in drug design.
93. Define metabolism? Enlist various metabolic pathways. Give a detail account of conjugation reactions.
94. Explain metabolic biotransformation of drugs (phase I). Give the factors influencing metabolic pathways of drugs.
95. What are prodrugs? Describe the prodrug concept with examples?
96. Explain in detail how you will improve the undesirable properties of the drug and its applications.
97. Give a detail account of the pharmaceutical and pharmacokinetic application of prodrug concept and design. Explain use of this concept for site specific drug delivery.
98. "Biological response is not the function of purity of the drug but is the function of its physicochemical parameters" Illustrate the above statement with suitable examples?
99. Write short notes on (any two)
    a. Ferguson principle
    b. Conjugation pathway
    c. Stereochemical aspects of drug action
100. Write notes on: (any two)
    a. Receptor site theories
    b. Drug metabolism
    c. Bioisosterism
101. Discuss SAR, Mode of action and uses of barbiturates. Outline the synthesis of phenobarbitone.
102. Give the chemical classification of hypnotics and sedative with structures of atleast one drug from each class. Outline the general scheme of synthesis of barbiturate. Discuss SAR of barbiturate.
103. Define sedative and hypnotics. Give the mode of action and classify them with suitable examples. Discuss SAR of barbiturates for sedative hypnotic activity. Outline synthesis of barbituric acid.
104. What are antidepressants? Classify them with examples. Write its mode of action and explain the SAR of tricyclic antidepressants.
105. Sketch mechanism of action and SAR of following.
    a. Benzodiazepine
    b. Barbiturate
106. Sketch mechanism of action and SAR of following.
    a. Hydantoin
    b. Local anesthetics
107. What are antidepressant drugs? Draw structures and synthesis of any two drugs acting as antidepressant. Give in brief the SAR of tricyclic antidepressants.
108. Explain the mechanism of action, SAR and synthesis any one drug of monoamino oxidase inhibitors and tricyclic antidepressants.
109. Classify antipsychotic agents with structure and IUPAC names. Give their mode of action. Write SAR of phenothiazine as a neuroleptic and outline synthesis of chlorpromazine.
110. Classify the anticonvulsant drugs on the basis of chemical structures. Show the common structural features shared by them. Give the mode of action of hydantoins. Outline the synthesis of any two drugs.
111. Discuss the general structural features of drugs associated with anticonvulsant activity. Write the mode of action, uses and synthesis of phenytoin and valproic acid.
112. What is convulsion? Write a detail account of anticonvulsants drugs.

113. What is epilepsy? Give types of seizures and classify antiepileptic drugs. Write in detail about hydantoin and oxazolidinedione.
114. Define the term Neuroleptics?
"Structural changes in molecules produces not only quantitative changes but also qualitative changes in biological activity" Explain this statement giving examples of phenothiazine derivative. Outline the synthesis of chlorpromazine.
115. Trace out the common structural features of different classes of antiepileptics? Outline the synthesis and clinical uses of phenytoin, ethosuximide and carbamazepine.
116. Discuss SAR of tricyclic antidepressant. Enumerate MAO inhibitors giving the structures of drugs. (12M)
117. What are antipsychotics? Classify phenothiazine derivatives. Outline the synthesis and medicinal uses of chlorpromazine and Haloperidol?
118. Explain in detail the structure activity relationship of phenothiazine and butyrophenone. Outline the synthesis of any one drug from both the category.
119. Classify antipsychotics giving two examples with structures for each class. Write the SAR and mode of action of phenothiazine antipsychotics. Outline the synthesis of chlorpromazine.
120. Give a detail account on central nervous system stimulants. (16M)
121. What are local anesthetics? How they differ from general anesthetics? Mention the ideal characteristics that a local anesthetic should possess? (12M)
122. Discuss the SAR in dialkyl aminoalkyl esters of aromatic acids for local anesthetic activity. Give the synthesis and specific uses of : i) Lignocaine ii) Procaine
123. How do you differentiate between local and general anesthetics? Describe the SAR of local anesthetics belong to two different classes?
124. What are local anesthetics? Give a brief account of the ester type of local anesthetics? Give the synthesis of any two ester type of local anesthetics?
125. Write short note on (any two)
    a. Antacids
    b. Antiemetics
    c. Antidiarrhoeals.
126. Write down the synthesis of following drugs (any four).
    a. Phenobabitone
    b. Diazepam
    c. Valproic acid
    d. Imipramine
    e. Haloperidol
127. Write short note on (any two):
    a. Ester containing local anesthetics
    b. Tricyclic antidepressants
    c. Barbiturate as an anticonvulsants
128. Write short note on-
    a. MAO inhibitors
    b. Tricyclic antidepressants
129. A) What are local anesthetics? Give a detailed account of ester type local anesthetics. Outline the synthesis of lidocaine. (10M)
    B) Give classification of general anesthetics and write their mode of action.(6M)
130. Write short note on- (any two)
    a. Barbiturates
    b. Phenothiazine as trianquillizers

c. Benzodiazepines as sedative hypnotics

131. Write a note on: (any two)

a. Receptor site theories b. Ester containing local anesthetics c. Bioisosterism

132. Give the structural formulae, IUPAC names, synthesis and specific uses any four of the following. (16M)

a) Diazepam b) Imipramine c) Oxazepam d) Haloperidol d) Phenobarbital

133. Discuss the following metabolic reactions with examples:

a) Acetylation b) Glucuronidation c) Sulfate conjugation d) N-Dealkylation

Question carries 4 marks

1. Explain the role of pKa in the biological activity of drugs?
2. What is the role of biological membrane on drug absorption?
3. Define drug distribution. Add a note on storage depots.
4. Write about the factors affecting accessibility of drug to its active site.
5. What is the effect of stereochemical features on biological activity?
6. Explain in short the ferguson's principle?
7. Explain, ratio of the ionized:non-ionized form of drug is essential for the drug absorption.
8. What is partition coefficient?
9. What is bioisosterism?
10. What are the recent bioisosteric applications in drug design?
11. What is isosteric replacement of atoms or groups? Explain it with reference to phenothiazine.
12. Explain oxidative reaction of biotransformation with examples.
13. Write hydrolytic reaction of biotransformation with examples.
14. Write reductive reaction of biotransformation with examples
15. What is glucuronic acid conjugation explain it with example.
16. Explain glutathione or mercapturic acid conjugation with example.
17. Explain methylation reaction with examples.
18. How do prodrugs differ from soft drugs?
19. Enumerate the ideal properties of an ideal prodrug?
20. Justify, the Dipivefrin has a better penetration rate than epinephrine?
21. 'Ionization of drug modifies biological activity' Explain the statement giving suitable examples.
22. How the drug stability can be improved by designing a prodrug?
23. How the patient acceptance can be improved by designing a prodrug concept?
24. What is bioprecursors? How it acts as a prodrug?
25. How can the prodrug design approach be utilized for controlled delivery?
26. Classify the chemical pathways of drug metabolism..
27. What are receptors? Classify it.
28. Give a brief account of 'Balleau's concept of enzyme perturbation'.
29. Write in short about receptor site theory.
30. Give the mechanism of action of anticonvulsants. Enlist the types of epilepsy?
31. Write SAR of barbiturate for sedative hypnotic effect.
32. Differentiate between barbiturates and benzodiazepines.
33. Give classification of general anaesthetics and write their mode of action?
34. Give synthesis and uses of piperidinedione derivative as sedative hypnotics.
35. Give two examples each with structures of benzodiazepines used as sedative and anticonvulsants?
36. Enlist different classes of anticonvulsant giving suitable examples and structures.

37. Write the mode of action of antidepressant.
38. Give mode of action of anticonvulsants.
39. Explain the effect of substituent at 1, 2, 3 position in Phenothiazine on antipsychotic activity.
40. Classify various psychotherapeutic agents and write their uses.
41. Write down the synthesis of benzocaine?
42. Differentiate between local anesthetics and general anesthetics.
43. Write the synthesis of diphenylhydantoin.
44. Give the structure and IUPAC names of Imipramine and Diazepam
45. Explain the combination treatment Levodopa and carbidopa in parkinsons disease.
46. Write a note on combination antacid preparation.
47. Give the application of green chemistry.
48. Define Antacids, Emetics, Anti-emetics, Purgatives,Antidiarrhoeals.
49. Write in short about antacids
50. Write in brief about purgatives.
51. Write in brief about anti-diarrhoeals.
52. Write in brief about antiemetics.

Question carries 10 marks

1. What are bioisosters? Classify them giving suitable examples and give its applications.
2. Give the metabolism of following.
   i) Aspirin
   ii) Methadone
   iii) Chlorpromazine
   iv) Isoniazid
   v) Ethanol
3. What are receptors? Give the factors affecting drug receptor interactions. Add a note on isosterism.
4. What are prodrugs? Give its applicatios.
5. Write a detail note on active transport process of drug absorption.
6. Describe Ionization and Complexation.

Question carries 6 marks

1. Draw the structures of following
   i) P-hydroxy benzoic acid
   ii) Riboflavin
   iii) Phenylephrine
   iv) Diazepam
   v) Diethyl stilbesetrol
   vi) Phenobarbitone
2. Give the examples of following reactions.
   i) Methylation reaction
   ii) Nucleoside and nucleotide formation
   iii) Conjugation with glycine, glutamine and other amino acids.
3. How the isosterism and steric features of drugs affects the drug receptor interaction.
4. Write a note on signal transmission. Give classification of drugs acting on CNS with examples.
5. Define general anesthetics and write the stages of anesthesia. Give its classification with structures.
6. What are physicochemical properties of drugs? Classify it, and add a note on Ferguson principle.

7. Give the synthesis of Barbituric acid Diazepam.
8. Give the synthesis of Chlorpromazine and Haloperidol.
9. Differentiate between
    i) Phagocytosis and pinocytosis ii) Uphill and downhill diffusion

SUBJECT: PHARMACEUTICAL ANALYSIS III (BP-603)

Question carrying 16 marks.

1. What is EMR spectrum? Explain beer-Lambert's law, give its limitations?
2. Explain the multi component assays.
3. Write in short on general instrumentation and explain detectors.
4. Explain in detail about instrumentation, principle and working of double beam uv spectrophotometer.
5. Write different modes of vibrations in a molecule .Give an account of detectors, sample cells and sample preparation in IR spectroscopy.
6. Give a detail account of IR spectroscopy.
7. Describe instrumentation and applications of IR spectroscopy.
8. Explain in detail nephlometry and turbidimetry.
9. Define nephlometry and turbidimetry, explain principle, instrumentation and applications of both.
10. Describe the amperometric titrations in detail.
11. Discuss the principle of polarographic analysis. Explain half wave potential characteristics of electro analytical species.
12. Explain in detail polarography.
13. Explain in detail about fluorimetric analysis.
14. Define fluroscence, explain principle and instrumentation.
15. Define fluroscence and phosphorescence and explain excitation and emission spectra with its applications.
16. Explain principle of fluorimetric, give factors affecting fluroscence intensity and explain procedure for determination of quinine sulphate by fluorimetry.
17. What is flame photometry? Give the sequence of events takes place in flame photometry .draw a neat labelled sketch of flame photometer and describe the functions of its important components .enlist the applications of flame photometry?
18. Explain in detail flame photometry.

Question carrying 8 marks.

19. Explain beer's lamberts law.
20. Write a note on general instrumentation of spectroscopy.
21. Explain detectors in detail.
22. Draw a well labelled diagram of single beam and double beam spectroscopy.
23. Describe in brief about any two methods used in multi component analysis by UV spectroscopic method.
24. Draw a schematic diagram of and explain working of double beam UV spectrometer.
25. Explain possible energy transitions in UV-Visible spectrometry .Draw a labelled diagram of typical UV-Visible spectrometer.
26. What types of electronic transitions will take place in cyclohexane, toluene and paracetamol when subjected to UV radiations?
27. State and derive beer lambert's law. Mention various factors responsible for deviation from beer lambert's law.
28. Give the detail applications of UV-Visible spectroscopy.
29. Describe various modes of vibrations in IR spectroscopy. Draw a neat labelled diagram of double beam FTIR.
30. Write short note on detectors used in IR spectroscopy?

31. What are commonly used techniques invariably employed for obtaining IR absorption spectrum of solid drugs explain?
32. Write a note on interpretation of IR?
33. How many fundamental modes of vibrations would you expect to observe in the IR absorption spectrum of CO_2? Give their names?
34. Write in detail about sampling techniques of IR.
35. Explain vibrational changes, factors influencing vibrational frequency and pharmaceutical applications. explain instrumentation and applications of nephlometry and turbidimetry
36. Describe principle and draw the instrumentation of nephlometry and turbidimetry.
37. Describe the principle, apparatus and applications of amperometry.
38. Explain the methodology and titration curves of amperometry.
39. Give Ilkovic equation and define half wave potential, diffusion current, residual current.
40. Define polarography and explain DME in detail.
41. Write short note on polarography.
42. Give the principle and instrumentation of polarography.
43. Explain in detail half wave potential.
44. Draw a well labelled diagram of H-type instrumentation of polarography and write a working.
45. Describe quantitative methods of polarography and give recent advances in polarography.
46. Define fluorescence and explain its principle.
47. Write in detail about filter fluorimeter and spectrofluorimeter.
48. Explain the factors in detail influencing flurometric spectroscopy.
49. Define Quenching and explain the parameters that cause Qenching.
50. Write down instrumentation and applications of fluorimetry.
51. Define flame photometry and give its instrumentation.
52. Give principle, theory and errors in flame photometer.
53. Discuss the principle and applications of flame photometry

Question carrying 4 marks

54. Explain simultaneous equation method.
55. Explain in detail absorbance ration method.
56. What is difference between florescence and phosphorescence.
57. Explain woodward fischer rule.
58. Write a note on electromagnetic radiations.
59. Explain the concept of chromophore and auxochrome in UV-vis spectroscopy.
60. Explain the bathocromic shift and hypochromic effect giving examples.
61. Write a note on monochromators used in spectrphotometry.
62. Describe sources of radiations of IR.
63. Describe monochromators of IR.
64. Describe the pharmaceutical applications of IR.
65. Write in short sampling of IR.
66. Give basic principle of IR.
67. Write a short note on stretching and bending vibrations
68. Describe instrumentation of nephlometry.
69. Describe instrumentation of turbidimetry.
70. Describe the principle of nephlometry.

71. Write down the conditions which are necessary for suspensions used in nephlometry and turbidimetry.
72. Write down the applications of nephlometry and turbidimetry.
73. Write a note on
74. Titration of reducible substances with non-reducible reagents.
75. Titration of non-reducible substances with reducible reagents.
76. Write a note on
    i. Titration of reducible substances with reducible reagents.
    ii. Titration of substances giving anodic diffusion current with the reagent giving cathodic diffusion current.
77. Write a note on
    i. Titration of non-reducible substances with non-reducible reagents using reducible indicator.
    ii. Give the applications for amperometry.
78. Write down advantages of amperometric titrations
79. Give advantage and disadvantage of DME.
80. Give basic principle of polarography.
81. Explain working of DME.
82. Explain calomel electrode.
83. Write a short note on maxima suppressor.
84. Write a short note on reference electrode.
85. Write precautions of DME.
86. What is Ilkovic equation and the factors affecting it?
87. Draw the well labelled diagram of calomel electrode and give its working.
88. Write current voltage relationship using polarographic apparatus.
89. Write a note on measurement of wave heights.
90. Write recent advances in polarography.
91. Write down the applications of fluorimetry.
92. Give the relationship between concentrations and fluorescence.
93. Draw the instrumentation of fluorescence.
94. Describe the effect of concentration and pH on fluroscence.
95. Give the principle of flame photometer.
96. Draw the instrumentation of flame photometer.
97. Explain errors in flame photometer.
98. Discuss the applications of flame photometer.
99. Write a note on automizer and burners.

Question carrying 2 marks

100. Define (any 2) (2M)
    i. a) Bathochromic shift b) Hypsochromic shift
    ii. c) Standard absorptivity value d) Isobestic point
101. Define (2M) (solve any 1)
    a. Chromophore and auxochrome
    b. Equivalent and molar conductance.
102. Define (2M) (solve any 2)
    a) Wavelength

b) Wave no.
c) Frequency

103. Define the term (2M)
   a. λmax
   b. Wave no.
104. Give the various regions of IR.
105. Give types of vibrations.
106. Enlist various types of sampling.
107. Discuss stretching vibration.
108. Describe bending vibration.
109. Give reason why water cannot be used as solvent in infrared spectroscopy
110. Define nephlometry and turbidimetry
111. Define amperometry.
112. Give applications of amperometry.
113. Define polarography and write Ilkovic equantion.
114. Define fluroscence and phosphorescence.
115. Define flame photometer.

SUBJECT: PHARMACOLOGY IV (BP-604)

Question for 4 marks

1. Mention two important uses of praziquantel.
2. Classification of anticancer drugs.
3. Give reasons , why Ethambutol should be avoided in children below 6 years of age.
4. Write short note on types a liprosy.
5. Write a short note on Chemotherapy of leprosy.
6. Treatment of leprosy.
7. Give a detail on Streotomycin.
8. Write uses and adverse effects of Grey baby syndrome.
9. Classification of anti-cancer drugs.

Question for 6 marks

1. Write a therapeutic uses of aminopenicillins.
2. Write a therapeutic uses of gentamycinand and aminoglycosides.
3. Write a short note on Adreno-corticoids hormons.
4. Write a short note on Anabolic steroids.
5. Write a short note on Fertility agents.
6. Write a short note on Immunostimulants.
7. Write a short note on Immunosupressant.

Question for 8 marks

1. Explain the mechanism of action and therapeutic uses of albendazole.
2. Explain the mechanism of action, uses and adverse effects of methotrexate.
3. Explain the mechanism of action, uses, adverse effects and important drugs interations of zidovudine.
4. Write a short on (any two): i) Amantadine ii) Enfuvirtide iii) Azidothymidine
5. Explain the mechanism of action, pharmacokinetics, adverse effects and uses of Griseofulvin.
6. Write a short note on Imidazoles and Triazoles
7. Write a short note on Miconazole and Clotrimazole.
8. Explain the mechanism of action, adverse effects and uses of fluconazole.
9. Write a short note on : i) Nystatin ii) Griseofulvin
10. Write a short note on : i) Rifampicin ii) Isoniazid
11. Write a short note on : i) Ethambutol iii) Pyrazinamide
12. Explain the mechanism of action, adverse effects, uses of dapsone.
13. Write a short note on i) Ethionamide ii) Ofloxacin
14. Give a detail account on Clofazimine.
15. Enumerate β- lactum antibiotic. Mention the therapeutic uses, adverse effects and uses of third generation Cephalosporins.
16. Write the difference between ampicillin and amoxicillin.
17. Write a short note on: i) Ampicillin ii) Monobactums
18. Write brief account on Fourth generation cephalosporins.
19. Write a short note on: i)Monobactums ii) Clavulanic acid

20. Explain the mode of action, therapeutic uses and adverse effects of tetracyclines.
21. Write a brief account on: i) Doxycycline ii) Chloramphenicol

Question for 16 Smarks

1. Enumerate alkylating agents. Write the mechanism of action, therapeutic uses and adverse effects of them.
2. Classify antimalarial drugs. Explain the therapeutic uses adverse effects of chloroquine.
3. Classify antiviral drugs. Explain the mechanism of action, therapeutic uses and adverse effects of Acyclovir.
4. Classify antifungul agents. Explain the mechanism of action, uses and adverse effects of Amphoterin B.
5. Classify antitubercular drugs. Explain the mechanism of action, adverse effects of any three commonly used first line drugs.
6. Classify penicillins. Explain the mechanisn of action, therapeutic uses, adverse effects of peneicillin G.
7. Explain mechanism of action, therapeutic uses Sand adverse effects of Aminoglycosides.
8. What are thyroid hormones describe in detail the various anti-thyroid agents use for the treatment of hypo and hyperthyroidism.
9. Give the pharmacological account of insulin as an anti-diabetic agents.

SUBJECT: PHARMACOGNOSY IV (BP-605)

1. Glycoside		
SN	**Questions**	**Marks**
1	Define Glycoside. Describe classification of glycosides with suitable example.	08
2	Classified Glycoside on the basis of aglycone moiety giving suitable examples along with their plant source.	08
3	Discuss general methods of isolation of glycoside.	08
4	Describe any two qualitative chemical tests for glycosides.	06
5	Write a detail note on cardiac and saponin glycoside with example.	16
6	Give detail account of microscopic characters of Senna.	16
7	Give detail account of microscopic characters of Rhubarb.	16
8	Describe general chemical properties of Glycosides with qualitative chemical tests.	10
9	What are C-Glycosides? Give biological source of any two plants having C-Glycosides and discuss systematic pharmacognostic study of any one.	16
10	Explain with the help of T.S of Senna leaf the diagnostic microscopical characters of drug.	12
11	Give chemical constituent of Digitalis leaves and their pharmacological uses.	06
12	Explain chemical test for Aloe.	08
13	Write short note on Quassia.	04
14	Write short note on Digitalis	08
15	Write short note on Liquorice	08
16	Differentiate between Indian Rhubarb and Chinese Rhubarb.	08
17	Differentiate between Tinnevally Senna and Alexandrian Senna	08
18	Differentiate between Indian Squill and European Squill.	08
19	Give pharmacological action and uses of Liquorice	04
20	Give Synonyms, BS, C.C, Uses of Indian Rhubarb	04
21	Give Synonyms, BS, C.C, Uses of Dioscorea	04
22	Give Synonyms, BS, C.C, Uses of Senna.	04
23	Give Synonyms, BS, C.C, Uses of Squill.	04
24	What is Glycoside?	02
25	Define Glycoside.	02
26	Give general extraction method of Glycoside.	08
27	Write a short note on Stas Otto method.	08
28	Give the classification, chemical test and properties of Glycosides.	08
29	Give complete pharmacognostical account of Liquorice.	12
30	Give major chemical constituents with structure and pharmacological uses of Liquorice.	08
31	Give botanical source, family, chemical constituents and therapeutic uses of Liquorice.	08
32	Give pharmacognostical detail of Liquorice.	12
33	Draw well labelled diagram of Liquorice.	04
34	Give complete pharmacognostical account of Senna.	12
35	Give major chemical constituents with structure and pharmacological uses of Senna.	08
36	Give botanical source, family, chemical constituents and therapeutic uses of Senna.	04
37	Give pharmacognostical detail of Senna.	12
38	Draw well labelled diagram of Senna.	04
39	Give complete pharmacognostical account of Aloe.	16
40	Give major chemical constituents with structure and pharmacological uses of Aloe.	08
41	Give botanical source, family, chemical constituents and therapeutic uses of Aloe.	08
42	Give pharmacognostical detail of Aloe.	12
43	Draw well labelled diagram of digitalis.	04
44	Short note on chemical test for Aloe.	08
45	Describe the general and specific test of Aloe.	08
46	Explain briefly about specific test of Aloe.	06
47	Give complete pharmacognostical account of Rhubarb.	12
48	Give major chemical constituents, pharmacological uses of Rhubarb.	04
49	Give botanical source, family, chemical constituents and therapeutic uses of Rhubarb.	08
50	Give pharmacognostical detail of Rhubarb.	12
51	Draw well labelled diagram of Rhubarb.	04
52	How will you differ between Indian Rhubarb and Chinese Rhubarb?	06
53	Give complete pharmacognostical account of Digitalis.	08
54	Give major chemical constituents, pharmacological uses of Digitalis.	08
55	Give botanical source, family, chemical constituents and therapeutic uses of Digitalis.	08
56	Give pharmacognostical detail of Digitalis.	12
57	Draw well labelled diagram of Digitalis.	04

58	Write a short note on the cardio active glycoside drug.	08
59	Give complete pharmacognostical account of Squill.	12
60	Give major chemical constituents, pharmacological uses of Squill.	06
61	Give botanical source, family, chemical constituents and therapeutic uses of Squill.	08
62	Give pharmacognostical detail of Squill.	12
63	Draw well labelled morphological diagram of Squill.	04
64	Write a short note on the cardio active glycoside Squill.	12
65	Give complete pharmacognostical account of Strophanthus.	16
66	Give major chemical constituents, pharmacological uses of Strophanthus.	04
67	Give botanical source, family, chemical constituents and therapeutic uses of Strophanthus.	08
68	Give pharmacognostical detail of Strophanthus.	12
69	Give complete pharmacognostical account of Liquorice.	16
70	Give major chemical constituents, pharmacological uses of Liquorice.	04
71	Give botanical source, family, chemical constituents and therapeutic uses of Liquorice.	04
72	Give pharmacognostical detail of Liquorice.	12
73	Draw well labelled diagram of Liquorice.	04
74	Write a short note on the Saponin glycoside.	08
76	Give complete pharmacognostical account of Dioscorea.	12
77	Give major chemical constituents, pharmacological uses of Dioscorea.	04
77	Give botanical source, family, chemical constituents and therapeutic uses of Dioscorea.	04
78	Give pharmacognostical detail of Dioscorea.	12
79	Write a short note on the Saponin glycoside, Dioscorea.	16
80	Give complete pharmacognostical account of Shatavari.	16
81	Give major chemical constituents, pharmacological uses of Shatavari.	06
82	Give botanical source, family, chemical constituents and therapeutic uses of Shatavari.	08
83	Give pharmacognostical detail of Shatavari.	10
84	Write a short note on the Saponin glycoside Shatavari.	12
85	Give complete pharmacognostical account of Quassia.	12
86	Give major chemical constituents, pharmacological uses of Quassia	04
87	Give botanical source, family, chemical constituents and therapeutic uses of Quassia	08
88	Write a short note on the Bitter glycoside.	04
89	Give complete pharmacognostical account of Kalmegh.	12
90	Give major chemical constituents, pharmacological uses of Buinimb.	04
91	Give botanical source, family, chemical constituents and therapeutic uses of Kalmegh.	04
92	Give pharmacognostical detail of *Andrographics paniculata.*	12
93	Write a short note on the Bitter glycoside, Kalmegh.	12
94	Write a short note on the Cynogenetic glycoside with drug.	12
95	Write a short note on the Isothiocynate glycoside with drug.	12
96	Write a short note on the Flavonoids glycoside with drug.	12
97	What do you understand by Glycoside?	04
98	Give the general description of Glycoside.	04
99	Discuss briefly about isolation method of Glycoside.	12
100	Describe any qualitative test of Glycoside.	08
101	Explain the classification of glycoside based on their chemical nature of aglycone moiety, glycosidic linkage and therapeutic action with example.	12
102	Detailed study of a drug containing C-glycoside.	12
103	Detailed study of a drug containing s-glycoside.	12
104	Detailed pharmacognostic study of any one anthraquinone glycosidic drug.	12
105	Detailed pharmacognostic study of any one cardiac glycosidic drug.	12
106	Detailed pharmacognostic study of any one saponin glycosidic drug.	12
107	Detailed pharmacognostic study of any one bitter glycosidic drug.	12
108	Detailed pharmacognostic study of any one Cynogenetic glycosidic drug.	12
109	Detailed pharmacognostic study of any one Isothiocyanate glycosidic drug.	12
110	Detailed pharmacognostic study of any one Flavonoid glycosidic drug.	12
111	Identification tests for saponin glycosides.	08
112	Write identification test for anthraquinone glycoside.	08
113	Write the source and uses for the following drugs. a) Bitter almond b) Black mustard c) Orange peels d) Strophantus	08
114	Give general biosynthetic pathway of glycoside.	12
115	Name different varieties of aloes and their sources	06
116	Explain Keller-Kiliani test.	04

117	Explain the chemical test of glycoside. a) Keller-Kiliani test. b) Born Trager Test c) Modified Born Trager Test d) Legal test	12
118	Explain pharmacological classification of glycoside with suitable examples.	12
119	Explain in detail the source, family, cultivation, collection, macroscopy, microscopy, chemical constituents, chemical tests, uses, substitutes, adulterants and storage of Senna.	16
120	Describe the macroscopy and microscopy of Senna with a note on its adulterants.	08
	2. **Resins**	
121	Define Resins.	02
122	What do you understand by the term Resins.	04
123	Define and classify the term Resins.	08
124	Elaborate the classification of Resins with suitable example.	08
125	Define the term Resins and write short note on its properties.	08
126	Define Resins and give its chemical and physical properties.	08
127	Write the short note on the extraction of Resins.	12
128	Discuss general methods of isolation and extraction of Resins.	12
129	Write a short note on the analysis of Resins.	10
130	Describe qualitative analysis of Resins.	10
131	Give complete pharmacognostical account of Asafoetida.	16
132	Give major chemical constituents, pharmacological uses of Asafoetida.	04
133	Give botanical source, family, chemical constituents and therapeutic uses of Asafoetida.	06
134	Give pharmacognostical detail of Asafoetida.	12
135	Give the category of Asafoetida and explain its pharmacognostic account.	16
136	Give complete pharmacognostical account of Capsicum.	12
137	Give major chemical constituents, pharmacological uses of Capsicum.	04
138	Give botanical source, family, chemical constituents and therapeutic uses of Capsicum.	06
139	Give complete pharmacognostical account of Turmeric.	16
140	Give major chemical constituents, pharmacological uses of Indian Saffron..	04
141	Give botanical source, family, chemical constituents and therapeutic uses of Turmeric.	06
142	Give complete pharmacognostical account of Ginger.	16
143	Give major chemical constituents, pharmacological uses of Ginger.	04
144	Give botanical source, family, chemical constituents and therapeutic uses of Ginger.	06
145	Give Synonym, Biological source, Chemical Constituent and uses of Guggul.	04
146	Give Synonym, Biological source, Chemical Constituent and uses of *Commiphora*.	06
147	Give Synonym, Biological source, Chemical Constituent and uses of Himalayan May Apple.	04
148	Write a short note on Indian hemp.	06
149	Give Synonym, Biological source, Chemical Constituent and uses of *Cannabis.*	04
150	Give botanical source, family, chemical constituents and therapeutic uses of Balsum of Tolu.	04
151	Give botanical source, family, chemical constituents and therapeutic uses of Balsum of Peru.	04
152	Give botanical source, family, chemical constituents and therapeutic uses of Balsum of Colophony.	06
153	How will you differ between Balsam of Tolu and Balsam of Peru.	06
154	Give Syn, BS, CC and Uses of..... a) Benzoin b) Myrrh c) Storax d) Colophonys e) Jalap	16
155	Discuss the general properties and chemical test of resin.	08
156	Differentiate between Sumatra Benzoin and Siam Benzoin containing at least one chemical test.	**08**
157	What are balsams?	04
158	What are resins? Classify them with suitable examples. Describe Asafoetida pharmacognostically.	16
159	Write a note on collection and preparation of asafoetida.	08
160	What are resins. Explain different types of resins based on their constitution.	10
161	Give detail pharmacognostical account of Ginger.	12
162	Give detail pharmacognostical account of Turmeric.	12
163	What are balsam. How balsam of peru differ from balsam of tolu.	08
164	Explain in detail the source, family, cultivation, collection, macroscopy, microscopy, chemical constituents, chemical tests, uses, substitutes, adulterants and storage of Turmeric.	16
165	Explain in detail the source, family, cultivation, collection, macroscopy, microscopy, chemical constituents, chemical tests, uses, substitutes, adulterants and storage of Ginger.	16
166	Explain in detail the source, family, cultivation, collection, macroscopy, microscopy, chemical constituents, chemical tests, uses, substitutes, adulterants and storage of Asafoetida.	16

167	Write a note on the adulterant of Ginger and the way to detect them.	08
168	Write a note on the preparation of Castor oil.	06
169	Give the biological source and uses of a) Benzoin b) Myrrh c) Colophony d) Storax	8
170	Source and important difference between Sumatra and Siam Benzoin.	08
171	Write source and give adulterant and substitution of Asafoetida.	08
172	Write source and give adulterant and substitution of Turmeric.	08
173	Write a short note on balsam.	6
	3. **Tannins**	
174	Define the term Tannin.	02
175	What do you mean by Tannin?	04
176	Define Tannin.	02
177	What do you understand by the term Tannin?	04
178	Define and classify the term Tannin.	10
179	Elaborate the classification of Tannin with suitable example.	12
180	Define the term Tannin and justify why Tannin are kept under astringent class.	06
181	Define Tannin and give its chemical and physical properties.	08
182	Write the short note on the extraction of Tannin.	08
183	Discuss general methods of isolation and extraction of Tannin.	10
184	Write a short note on the analysis of Tannin.	08
185	Describe qualitative analysis of Tannin.	10
186	Explain the Goldbeater skin test for tannin.	08
187	Explain the properties, chemical nature , general method of isolation and uses of tannins.	10
188	What are Tannins? Give complete pharmacognostical account of Catechu.	16
189	Define Tannins and differentiate in drug of Combretaceae family.	16
190	Write a short note on classification and chemical test of Tannins.	12
191	Describe the chemistry of tannin and give its classification.	12
192	Differentiate between gambier and black cateche containing at least one chemical test.	08
193	Write a short note on the chemical test of tannin.	08
194	Write a short note on the method of preparation of black cateche.	08
195	Describe Gambier pharmacognostically and give chemical tests to differentiate from black cateche.	16
196	Give test for the identification of tannin.	08
197	Discuss the chemistry of tannin.	08
198	Differentiate between hydrolysable and condense tannin.	06
199	Define tannin. Explain astringent action of it.	04
200	Give the chemical test of black cateche.	04
201	What is Gold beater skin test? What for it is used?	06
202	What are tannins? Describe Nutgall pharmacognostically.	12
203	Give detail pharmacognostical account of amla.	12
204	Give test for the identification of tannins.	12
205	Write in brief the classification and properties of tannins.	12
206	What are tannins? Describe biological source, chemical constituents, preparation and uses of black cateche.	12
207	Describe Gambier pharmacognostically and give chemical test to differentiate from black cateche.	12
208	Extraction of Medicinal black catechu.	08
209	Compare between black cateche and pale cateche and bring out all the possible difference.	6
210	Give the biological source and uses of a) Ashoka b) Arjuna c) Bahera d) Amla	8
211	Give synonym, source, constitution, use of any two bark drug.	8
	A Study of structural elucidation of following phytoconstituents.	
212	What do you mean by phytoconstituents?	04
213	How will you elucidate the structure of camphor?	12
214	Write in detail about the structural elucidatation of camphor.	16
215	Write the biological source of camphor and give its elucidation process.	16
216	How will you elucidate the structure of Eugenol?	12
217	Write in detail about the structural elucidatation of Eugenol.	16
218	Write the biological source of Eugenol and give its elucidation process.	16
219	What do you mean by structural elucidation? How will you generally elucidate the structure of	16

	phytoconstituents?	
5. Isolation, purification and chromatographic profile		
220	Write the isolation, purification and chromatographic profile of camphor.	16
221	Write the isolation and chromatographic method of camphor. How will you elucidate the structure of it?	16
222	Write the isolation, purification and chromatographic profile of eugenol.	12
223	Write the isolation and chromatographic method of eugenol. How will you elucidate the structure of it?	16
224	Write the isolation, purification and chromatographic profile of cineole.	12
225	Write the isolation and chromatographic method of cineole.	12
226	Write the isolation, purification and chromatographic profile of menthol.	12
227	Write the isolation and chromatographic method of menthol.	12
228	Write the isolation, purification and chromatographic profile of citral.	12
229	Write the isolation and chromatographic method of citral.	12
Marine Drugs		
230	Define and classify marine drug.	08
231	Define marine drug and give the role of marine drug in pharmaceutical industry.	08
232	Differentiate between Herbal drug and marine drug with example.	08
233	Define marine drug and write a note on the anticancerous drug with its source.	10
234	Define marine drug and write a note on the cardiovascular drug with its source.	10
235	Define marine drug and write a note on marine toxin.	10
236	Write biological source, chemical constituent and chemical structures of marine toxin with its use.	12
238	Write biological source, chemical constituent and chemical structures of cardiovascular agent of marine source with its use.	12
239	Write biological source, chemical constituent and chemical structures of anticancerous agent of marine source with its use.	12
240	Write a short note on marine toxin.	08
241	Write a short note on anticancerous marine drug.	08
242	Write a short note on cardiovascular agent of marine drug.	08
243	Describe the importance of marine drugs in pharmaceutical sciences.	08
244	Classify and briefly describe cardiovascular agent of marine source with structure.	10
245	Classify and briefly describe marine toxin with structure.	10
246	Classify and briefly describe anticancerous agent of marine source with structure.	10
Mixed Question		
257	State the biological source, chemical constituent, tests for identification, uses and morphological diagram of digitalis leaf.	16
248	State the biological source, chemical constituent, tests for identification, uses of aloe.	16
249	State the biological source, chemical constituent, tests for identification, uses and morphological diagram of Shatavari.	16
250	State the biological source, chemical constituent, tests for identification, uses of asafoetida.	16
251	State the biological source, chemical constituent, tests for identification, uses and morphological diagram of ginger.	16
252	Explain the Borntrager and modified Borntrager test with examples.	08
253	Give source, constituent, use of any two anthraquinone glycoside drug.	06
254	Give source, constituent, use of any two saponin glycoside drug.	06
255	Give source, constituent, use of any two resin category drug.	06
256	What is stas- otto method?	08
257	What is klunge isobarboloin test?	04
258	What is cuproloin test?	04
259	Elaborate the modified Borntrager test.	04
260	Elaborate the Gold bitter skin test.	06
261	Define the term pseudo tannin and explain it.	04
262	What do you meant by condensed tannin, explain with one reaction.	06
263	Write a short note on the chemical test of resin drug.	06
264	Source, chemical constituent and uses of Indian saffron.	04
265	Chemical test for cardiac glycoside.	06
266	Source, chemical constituent and uses of Embillica.	04
267	Write the biological source of balsam of peru and balsam of tolu.	04
268	Write briefly about the structural elucidation of camphor.	16
269	Write source, molecular formula, structure, isolation and estimation of camphor.	16
270	Write source, molecular formula, structure, isolation and estimation of eugenol.	16
271	Write source, structure, isolation and estimation of citral.	12
272	Write source, structure, isolation and estimation of cineole.	12
273	Write source, structure, isolation and estimation of menthol.	12
274	What do you mean by structural elucidation? What is its role in the analysis? Write short note on structural elucidation of eugenol.	16

275	Write a note on the extraction and isolation of Glycoside.	08
276	Write a note on the extraction and isolation of Tannin.	08
277	Write a note on the extraction and isolation of Resin.	08
278	Write the source, chemical constituent, chemical structure and use of a) Senna b) Digitalis c) Aloe d) Liquorice	16
279	Give source, structural formula, molecular formula and uses of a) Camphor b) Eugenol	08
280	Give method of isolation and chromatographic profile of a) Camphor b) Menthol	16
281	Write a short note on Cynogenetic glycoside.	08
282	Write a short note on general chemical test of aloe.	06
283	How is colophony is prepared. In what way does it differ from Benzoin.	08
284	Write a note on the incision of devils dung.	06
285	Write a note on the adulterants of a) Senna b) Asafoetida c) Turmeric	06
286	What are barbaloin and isobarboloin? What is the significance of isobarboloin?	06
287	Give the reason a) Digitalis should be dried below 60^0C immediately after collection. b) Rapid drying of cardamom is to be avoided.	06
288	Bring out the morphological difference between two varieties of Senna.	08
289	Describe how cape aloe is produce.	06
290	Describe the morphology of Shatavari.	06
291	Draw neat and labelled diagram of digitalis leaf.	04
292	Extraction of Tannin.	06
293	Extraction of Resin.	06
294	Analysis of Resin.	06
295	Give cultivation, collection and preparation for the market of a) Capsicum b) Cannabis	10
296	Give source, cultivation, collection and method of preparation of black cateche.	12
297	Give source, chemical constituent and uses of a) Myrobalon b) Jalap c) Gall d) Storax e) Guggul	12
298	Draw the chemical structure of a) Sennoside A b) Camphor c) Eugenol d) Menthol	08
299	Describe the macroscopy and microscopy of Podophyllum.	06
300	Write a note on marine drug.	

SUBJECT: QUALITY ASSURANCE (BP-606)

Question carries 16 marks

1) What is validation. Explain in brief process validation and equipment validation.
2) Elaborate term IPR. Describe in detail different forms of IPR.
3) Explain in detail patent patent procedure, filing, search and licensing.
4) What is patent, explain in detail about patent procedure and give document needed for patent application. Add a note on patent licensing.
5) What is patent. Explain different forms of Intellectual property rights and add a note on Indian patent act 1970.
6) Give a detail account on Good manufacturing practices.
7) Give a detail account on Good laboratory practices.
8) Explain responsibilities, routine control, instrument and protocols of quality control laboratory.
9) Explain preclinical trials in detail. Describe procedure and application of Investigational new drug (IND).
10) Write in detail about brochure preparation for IND and ANDA. Describe clinical research protocols.
11) Write procedure and brochure preparation for NDA an ANDA.
12) What is validation. Explain process validation and personnel validation in detail.
13) Describe new development in regulatory affairs across the world with regards to WHO and ICH guidelines. Explain regulatory requirements in United States and India.

Question carries 8 marks

1) Define quality control. Describe in detail about Total quality management.
2) Explain in brief ICH guidelines.
3) Note on – GMP.
4) Note on – GLP.
5) Define validation. Write in detail about equipment validation.
6) Define Intellectual property rights. Explain terms patent and trademarks in detail.
7) Explain different forms of Intellectual property rights.
8) Note on – Indian patent act 1970.
9) Note on - ANDA.
10) Describe in detail process validation and personnel validation.
11) Note on – Clinical research protocols.
12) Give detail account on GLP.
13) Write procedure and application for New drug approval process.
14) Write a note on – Effect of GATT and WTO with regards to pharmaceuticals.
15) Note on – ISO.
16) Write a standard operating procedure for compression and coating.
17) Write a note on – Clinical research protocols.
18) Write the standard operating procedure for sterilization.
19) Describe in brief about preclinical studies.
20) Describe brochure preparation for IND.
21) Describe brochure preparation for ANDA.
22) Describe procedure for new drug approval process.
23) Note on – Clinical research protocols.
24) Note on – Nonclinical trials.

25) Note on – NDA.
26) Define standard operating procedure. Write SOP for sterilization.
27) Write SOP for cleaning, filling and drying.
28) Explain in- process quality control on various dosage form and add a note on SOP for cleaning.
29) Give a brief account on analytical method validation.
30) Define quality assurance. Give a detail account on Total quality management.
31) Define IPRs. Describe trademarks and copyright in detail.
32) Note on – ICH guidelines.
33) Explain in detail about procedure for patent and patent licensing.
34) What is IPR. Explain industrial properties in detail.
35) Write in detail about procedure, filing and search for patent.
36) Outline the basic concept of quality control and quality assurance. Explain ISO.
37) Write about regulatory requirements in United states, Japan and India.
38) Explain new development in regulatory affairs across the world with regards to WHO and ICH guidelines.
39) Describe regulatory requirements in European community, United states, Japan and India.
40) Outline concept and historical development of pharmaceutical product registration and explain effect of GATT with regards to pharmaceuticals.
41) Note on – IND application.
42) Note on – IPRs.
43) Explain patent procedure, filing, search and licensing.
44) Define IPR. Explain patent and copyright in detail.
45) Elaborate intellectual property rights along with their different forms.
46) Describe various steps involved in application of investigational new drug.
47) Describe preclinical trials and clinical research protocols.
48) Explain INDA and elaborate nonclinical trials in detail.
49) Give a detail account on quality control documentation and quality audits.
50) Write about basic concept of quality control, quality assurance and total quality management.
51) Define validation. Give a detail account on process and equipment validation.
52) Give a detail account on TQM and ISO.
53) Write regulatory requirements in European community and India. Describe effect of GATT with regards to pharmaceuticals.
54) Write in detail about procedure and filing for patents and add a note on patent act 1970.
55) Write on regulation, requirements, procedure and application of new drug approval.
56) Write about regulatory requirements in US, Japan and India. Outline on new developments in regulatory affairs across the world with regards to ICH guidelines.

Question carries 4 marks

1) Outline the basic concept of QC and QA.
2) Write the SOP for drying.
3) Short note on – Quality audits.
4) Note on – Personnel validation.
5) Give SOP for compression.
6) Give SOP for coating.
7) Give SOP for filing.
8) Explain effect of GATT with regards to pharmaceuticals.
9) Explain effect of WTO with regards to pharmaceuticals.

10) Explain concept and historical development of pharmaceutical product registration.
11) Note on – Total quality management.
12) Write about quality control and quality assurance.
13) Note on - ISO.
14) Write responsibilities of quality control laboratory.
15) Write about instrument and standard test procedure sampling plans of quality control laboratory.
16) Note on – Quality control documentation.
17) Define validation. Describe personnel validation.
18) Describe analytical method validation.
19) Elaborate preclinical studies.
20) Note on – Equipment validation.
21) Describe brochure preparation for ANDA.
22) Write a note on clinical research protocols.
23) Elaborate terms quality control and total quality management.
24) Note on brochure preparation for IND.
25) Write regulatory requirements in European community and India.
26) Write regulatory requirements in United States and India.
27) Write regulatory requirements in Japan and India.
28) Describe new developments in regulatory affairs across the world with regards to WHO.
29) Describe new developments in regulatory affairs across the world with regards to ICH guidelines.
30) Note on – Copyright.
31) Write about trademarks and trade secrets in IPRs.
32) Note on – Patents.
33) Write on geographical indication and industrial design regards with IPR.
34) Write procedure for patents.
35) Describe terms filing and search related with patents.
36) Note on – Patent licensing.
37) Note on – Equipment validation.
38) Note on – Nonclinical trials.
39) Explain preclinical trials for INDA.
40) Write on quality control documentation.
41) Write standard operating procedure for sterilization.

Question carries 2 marks

1) Define quality control and quality assurance.
2) What are preclinical trials.
3) Define IPR. Write various forms of IPR.
4) What is patent.
5) What is trademark and trade secrets.
6) Write on geographical indication.
7) What is IND and ANDA.
8) What is the need of GMP.
9) Write a role of GLP in clinical trials.
10) Define quality control and total quality management.
11) Define validation and standard operating procedure.
12) Write regulatory requirements in US.
13) Write regulatory requirements in India.

14) Write regulatory requirements in Japan.
15) Write regulatory requirements in European community.
16) What is industrial design.
17) Write SOP for drying.
18) What is the need of ICH guidelines.
19) What is the role of ISO.
20) What is the need of quality control documentation.

B. PHARM. 4TH SEMESTER VIII

SUBJECT: DOSAGE FORM TECHNOLOGY II (BP-801)

16 MARKS QUESTION

1) Explain the concept of pharmacokinetic principles in the design of controlled drug delivery systems. Explain drug release pattern from these systems. Discuss parenteral controlled drug delivery systems.
2) How controlled release system differs from sustained release system? What is the rationale for selection of drug candidates for controlled drug delivery systems? Discuss oral controlled release dosage forms.
3) Enlist methods for preparation of microencapsules. Explain coacervation phase separation method with examples. Discuss applications of microencapsules.
4) Explain quality control test for parenteral preparation.
5) Explain various steps involve in the processing of parenteral preparation.
6) Explain in brief component used in formulation of parenteral preparation.
7)

12 MARKS QUESTION

1. Give an account of approaches and applications of implantable drug delivery systems.
2. Discuss the design and development of oral controlled release drug administration.
3. Explain design and mechanism of occuserts.
4. Describe in detail ocular drug delivery system.
5. Write note on Controlled drug delivery system.
6. Detail the physicochemical properties of Sustained Drug Delivery Systems.
7. Give the principle of Microencapsulation. Explain any one technique adopted for bringing about Microencapsulation.
8. Describe in detail Gastro intestinal retention of oral drug delivery system.
9. Discuss the design and development of controlled release oral drug delivery System
10. Write notes on Osmotic pressure controlled oral drug delivery system.
11. Write notes on Ion exchange controlled delivery system
12. Discuss parenteral controlled drug delivery system.
13. Describe the fabrications of C D D module for eye
14. Discuss potential benefits of controlled drug delivery system
15. Describe the principle and manufacturing of microencapsulation by coacervation phase separation method
16. Give account on polymer used in controlled drug delivery system.
17. What do you mean by microencapsulation and briefly explain various techniques which can be adapted for bringing about microencapsulation.
18. Write notes on modulation of gastro-intestinal transit time.
19. Write notes on biodegradable polymer.
20. What are polymers? Classify them and write a detail note on biodegradable polymers.
21. Explain with examples biodegradable and nonbiodegradable polymers used for controlled drug delivery systems
22. Discuss the design and development of oral controlled release drug administration.
23. What is Microencapsulation? Classify various methods and write in brief microencapsulation by spray drying and spray congealing.
24. Explain in detail microencapsulation techniques systems.

25. Explain the concepts and design of rate controlled drug delivery system.
26. Discuss the design and development of controlled release oral drug delivery System
27. Give an account of approaches and applications of implantable drug delivery systems
28. Explain biopharmaceutical, pharmacokinetic and pharmacodynamic parameters which are considered in design of modified drug delivery systems?

29. Explain types and formulation of LVPs. Give quality control tests of it.

30. What packaging materials are used for parenterals? Explain any one in detail along with its evaluation tests.

31. Explain design, construction and working of HEPA filter unit.

32. What are the different sources of contamination in Aseptic area? How they are checked?

33. What are Parenteral Preparation? Mention the various routs of administration of parenteral preparation. Briefly discuss the product development aspect of a sterile liquid product.

34. Discuss the rational for controlled drug delivery system. Discuss in brief the various technologies used for designing of oral controlled release formulation

35. Discuss formulation development of small volume parenteral preparation?

36. What are the advantages of microencapsulation? Described the important techniques of microencapsulation?

37. Define small volume parenteral .Discuss the production facilities, environment and personal controlled in the production of sterile dosage form.

38. Define controlled drug delivery system? Give different approaches for formulating oral controlled drug release system.

39. What are the additives of sterile dosage form? Explain the quality control test for its evaluation.

40. Explain formulation and development of sterile dosage form.

41. Give account on steps involve in sterility test.
42. Write a notes on Monoclonal antibodies?

8 marks question

1. Discuss the sterile testing requirement for parenteral preparation
2. Give the advantages of spray drying technique for preparation of microencapsulation.
3. Give the principal of LAL test.
4. Explain the different types of controlled drug delivery system
5. Give difference between water for injection I.P and sterile water for injection I.P.
6. What are Pyrogen? How they are destroyed.
7. Described air suspension technique and pan coating technique for microencapsulation

8. Write notes on intragastric floating gastrointestinal drug delivery system
9. Give account on pH controlled gastro intestinal drug delivery system.
10. Write note on antimicrobial used in production of parenteral preparation
11. What are the different types of vehicle used in the parenteral preparation.
12. How will you prepare water for injection free from Pyrogen
13. What are the different of adjutants used in formulation of parenteral preparation
14. What are the general requirements used for preparation of parenteral product
15. Write in short various factors which influencing design and performance of sustained/controlled drug delivery
16. What do you mean by drug target? Explain active and passive drug targeting.
17. Explain various carrier used for targeting drug delivery system
18. Write note on intra gastric somatically controlled drug delivery system.

8 marks question

1) Write short notes on any two

a) Occusert.
b) Microencapsulation technique.
c) Osmotic pressure controlled delivery system.

2) Write short notes on any two

a) Microencapsulation by spray drying and spray congealing
b) Biodegradable polymers.
c) Ion exchange controlled drug delivery systems

3) Write short notes on any two

a) Oral controlled drug delivery system.
b) Applications of Polymers in Controlled drug delivery system.
c) Coacervation and Phase separation technique.

4) Write short notes on any two

a) Microencapsulation techniques systems
b) Long acting contraceptives
c) pH controlled drug delivery system.

5) Write short notes on any two

a) Gastro intestinal retention of oral drug delivery system
b) Biodegradable polymers
c) Osmotic pressure controlled oral drug delivery system.

6) Write short notes on any two

a) Air suspension technique
b) Aseptic area
c) Small volume parenteral

7) Write short notes on any two

a) Module for GIT

b) Parenteral controlled drug delivery system
c) Hydrodynamically controlled balance tablet

8) Write short notes on any two
a) Microencapsulation by spray drying method
b) Gel diffusion controlled delivery system
c) Occuserts

9) Write short notes on any two
a) Osmotic pressure controlled drug delivery systems
b) Ion-exchange resins controlled drug delivery systems
c) Natural polymers.

10) Write short notes on any two
a) Occusert.
b) Air suspension technique
c) pH controlled gastrointestinal drug delivery system.

11) Write short notes on any two
a) Antioxidants used in formulation
b) Pyrogens
c) Water For Injection (WFI)

12) Write notes on any two
a) Preservative and antioxidant
b) Sterility testing
c) Microencapsulation

13) Write notes on any two
a) Quality control test for sterile dosage form
b) Chelating agent
c) Tonicity adjuster

14) Write notes on any two
a) HEPA Filter
b) Preservative and antioxidant
c) Aseptic area

15) Write notes on any two
a) Surfactant
b) Antimicrobial
c) Solvent Evaporation

16. Write notes on any two
a) Liposome
b) Implant
c) Chelating agent

4marks question

1) Define following terms? Prolong action dosage form, Repeat action dosage form, sustained action dosage form,
2) Give the chemical test for Pyrogen
3) Explain the leak test for parenteral as per USP.
4) Give the difference between small volume parenteral and large volume parenteral as per USP.
5) What are the principal of sterile testing
6) Explain the role of laminar air flow system for aseptic area.
7) Give the account on pharmacokinetic data for the development of oral controlled drug delivery system.
8) Describe briefly the biological test for Pyrogen
9) What are the advantages and disadvantages of parenteral preparation
10) Write a notes on different route of administration of parenteral product
11) Write the principal of Pyrogen test.
12) Give note on types of parenteral preparation
13) Write note on different types of injection
14) Explain biological factor influencing design and performance of sustained/controlled drug delivery.
15) What fundamental concept used in controlled released
16) Write note on parenteral controlled drug delivery system
17) Write note on monoclonal antibodies
18) Give account on nanoparticle
19) What is drug targeting
20) Give account on intrarumen controlled release drug delivery device
21) What is prodrug? Give its application.
22) Write account on polymer properties which influencing drug permeation.

SUBJECT: MEDICINAL CHEMISTRY III (BP-802)

Que. Carry 16 marks

Que. 1. Attempt any five

a. Give general structural feature of cholinergic, giving two examples
b. Write the structures giving IUPAC name of any two NSAID.
c. Give synthesis of any one drug of NSAID.
d. Give importance of prostaglandin in our body.
e. Write short account of cholesterol
f. Write about antitusive.

Que. 2. What are steroids write about estrogen and progestin and give the SAR of estrogen derivatives

Que. 3 a. Discuss in short about Adrenocorticoids

b. What is antiallergic, write one synthesis under it.

Que.4 Write structure and relevant uses of following.

a. Hexamethonium b. Trihexyphenidyl c. montulokast d. procyclidine e. dicyclomine

Que.5. Write structure and IUPAC of following.

a. Doxylamine b. pheniramine c. naproxen d. ibuprofen e. mecamylamine

Que. 6. Write short note on any four

a. Antithyroid b. antiasthamatic c. Ganglionic blocker d. Neuromascular blocker e. Narcotic analgesic

Que. 7 Solve any four.

a. Why phosphorous ester acts as irreversible cholinesterase inhibitor
b. Give an account of structural similarities between antihistamine and anticholinergic.
c. Enumerate the role and limitation of respiratory agent
d. Give biological significance of prostaglandins
e. Give biologicak significance of narcotics.

Q. 8 Write short note.

a) Antithyroid drugs.
b) Expectorers and antitusrive.
c) Adrenocoticoids
d) Cholesterol
e) Antihistaminr.

Que. 7 Solve any four.

a) Difine prostagiandins and give its general structure.
b) What are adrenergic hormones? Draw structure of any two adrenergic.
c) Differentiate between thyroid and anti-thyroid agent.
d) Write in brief about bronchodilators.
e) What is neuromuscular blocking agent? Give two examples of them.

Que. 8. Write short note.

a) Antithyroid drugs.
b) Norcotics.
c) Antiasthamatics
d) Ganglionic blockers
e) Nuromuscular blocker

Que. 9. Solve

a) What are narcotic analgesic, classify them, give in general SAR, Mode of action, of narcotic analgesics [12 marks]
b) Outline synthesis of Codeine [4 marks]

Que. 10 Solve

a) What are corticosteroids, Write their mechanism of action and outline synthesis of Betamethasone.
b) What are anabolic agent, Discuss SAR, Mode of action of anabolic agents.

Que. 10 Solve

a) Explain mechanism of action of COX 1 and COX 2 inhibitor, compare the pharmacological profile of the drugs.
b) Give the classification of antihistamine drug, describe mechanism and therapeutic uses of antihistamines.

Que. 11. Classify adrenergic agents with suitable examples along with structure, Explain structural modification in sympathomimetics drugs, Give the significance of beta blockers and give synthesis of any one beta blocker.

Que. 12. Solves

a) Indicate the functional group, their position required for estrogenic activity in steroid nucleus [13 M]
b) Give color reaction for detection of steroids in natural sources.[3M]

Que. 13. Solves

a) Show which hormones from anterior pituitary stimulate secretion of a number of corticosteroids, Name them and give structures with nomenclatures. [13 M]
b) Discuss structure and position of side chain in cholesterol.[3 M]

Que. Carry 8 marks

1. What are steroid, write about estrogen and progestins give the SAR of estrogen derivatives.
2. What are cholinergic, write about chemistry, biosynthesis and metabolism of it
3. What are NSAID, give details classification with examples and structure?
4. Solve
   a. Write the synthesis of paracetamoles.
   b. Discuss in general the mode of action of NSACD.
5. Short note.
   a. Antiallergic agents
   b. Corticosteroids.
6. Write structure and relevant use of following.
   a. Dextromethorphan b. Nolorphine c. Codine d. diclofenac
7. Write about Antiasthmatics, Expectorants, Bronchodilators and nasal decongestants with structures.
8. Classify adrenergic and cholinergic with suitable examples with structures and give structural features of sympathomimetics.
9. Classify anticholinergic and noradrenergic with suitable examples with structure and give structural features of parasympatholytic.
10. Give structure and relevant uses of followings.
    a. Zafirlukast b. montulokast c. donepezil d. dicyclomine e. clonidine
11. Explain biosynthesis and metabolism of acetylcholine, epinephrine and nor epinephrine.
12. Solve
    a. Write a note on ganglionic blocker and give their significance
    b. Write an account of antiallergic agents and their clinical utility
13. What are NSAID, Give detail classification with examples and structures.
14. Solves
    a) Write a note on antihistamine in hyperacidity.
    b) Classify the drugs used in allergic condition explaining their specific mode of action.
15. Write a note on Nasal Decongestant giving suitable examples and outline synthesis of any one drug.

16. Explain cholinergic and anticholinergic drugs along with an account of their specific receptor sites.
17. Classify adrenocorticoids with suitable examples giving structures and outline synthesis of any one.
18. Discuss chemistry and structure elucidation of ergisterol giving it's pharmacological importance.
19. Differentiate between androgen and progestin.
20. Give classification and examples of androgens
21. Discuss in brief chemistry, SAR and mode of action of anabolic steroids.
22. Solves.
    a) Why phosphorous ester acts as irreversible cholinesterase inhibitors
    b) Give an account of structural similarities between antihistamine and anticholinergics.
23. Write structure, IUPAC and specific uses of following [any two]
    a. Carbachol b. physostigmine c. isopropamide
24. Write structure, IUPAC and specific uses of following [any two]
    a. Bethanechol b. Neostigmine c. Cyclopentolate
25. Write structure, IUPAC and specific uses of following [any two]
    a. Adrenaline b. phenylephrine c. Terbutaline
26. Write structure, IUPAC and specific uses of following [any two]
    a. Methoxamine b. Atenolol c. Doxylamine
27. Write structure, IUPAC and specific uses of following [any two]
    a. Pyrilamine b. Chlorpheniramine c. Meclizine
28. Write a note on ganglionic blocker and their significance.
29. A)Write an account of antiallergic agents and their clinical utility
    B) Outline synthesis of Meclizine
30. Write synthesis of any two.
    a. Cyclizine b. cimetidine c. Ibuprofen
31. Write synthesis of any two.
    a. Buclizine b. Ranitidine c. Naproxen
32. Write synthesis of any two.
    a. Meclizine b.Indomethacin c. Sulindac
33. Give the general structural features of cholinergic giving two examples
34. Give structures with IUPAC name of any two NSAIDS.
35. What are adrenergic hormones, write about the biosynthesis and metabolism of them.
36. a) What are antiallergic agents, write one synthesis under it.
    b) Write in brief about antiasthamatics.
37. What are allergies, How allergies develops.
38. Give metabolism pathway of histamine in human.
39. Give classification of antihistamine with structures.
40. Solves.
    a) Give SAR of histamine H1 antagonist.
    b) Give synthesis of diphenhydramine
41. Solves.
    a) Give SAR of ethylenediamine derivatives of histamine antagonist.
    b) Give structures of antihistamine belonging to Ethylenediamine class.
42. Solves.
    a) Give synthesis of Pyrilamine.
    b) Give structures and IUPAC name of antihistamine belonging to propylamine class.
43. Solves.
    a) Give synthesis of Promethazine.
    b) Give structures and IUPAC name of antihistamine belonging to piperazine class.
44. Solves.
    a) Give synthesis of.cyclizine.
    b) Give therapeutic applications of antihistamines
45. Solves.

a) Give synthesis of.Chlorcyclizine.
b) Explain second generation antihistamines.

46. Solves.
    a) Explain histamine H2 receptor blockers.
    b) Write side effects of antihistamines.
47. Solve.
    a) Explain in short histamine receptors.
    b) What are antihistamine and how it work.
48. Solve.
    a) Give classification of narcotic analgesics with examples.
    b) Give biochemical mechanism of action of opiate.
49. Solve.
    a) Explain in short opiate receptors.
    b) Give therapeutic applications of opiate.
50. Explain chemistry of morphine
51. Write adverse effects of opiate
52. Solve.
    a) Explain natural narcotic analgesics with examples.
    b) Give synthesis of methadone
53. Solve.
    a) Explain synthetic narcotic analgesic.
    b) Explain narcotic antagonists
54. Write a note on anticholinesterases.

Questions and respective marks

55. Give classification of cholinergic drug with examples and write the SAR, mode of action and uses. Outline the synthesis of any one anticholinesterases?[12 M]
56. Write a note on anticholinesterases.[4M]
57. Give an account of cholinergic and anticholinesterases agents and outline the synthesis of any two such drugs?[12 M]
58. What are neurotransmitters? Classify neurotransmitters with examples? Describe the synthesis and release of acetylcholine?[12M]
59. Outline synthesis and describe the clinical uses of a cholinergic agoinist, which is an m-hydroxy aniline derivative.[8M]
60. Give a comprehensive account of parasympathomimetic drugs covering their classification, SAR and mode of action? Describe the synthesis and clinical uses of three such drugs?[16M]
61. Give an account of the drugs used as cholinergic and anticholinesterases agents?[8M]
62. What are the differences between cholinergic agonists and antagonist? Discuss the chemistry of any two drugs from each category?[12M]
63. What are antispasmodic and antiulcer drugs? Give an account of the chemistry of synthetic cholinergic blocking agents?[12M]
64. What do you understand by cholinergic and anticholinesterases agents?[8M]
65. Describe the synthesis and clinical uses of :[16mM
    a) Pralidoxime b) Homeatropine
    b) Trihexyl phenidyl d) Tropicamide
    c) Dicyclomine f) Piperidolate.
66. Give a brief account on chemistry of :[12M]
    a)Pyridostigmine
    b)Atropine

c)Propantheline bromide
d)Biperidine.

67 Write notes on:[8M]
a) Reversible anticholinesterases
b) Cholinomimetic alkaloids
c) Choline ester.

68. Classify adrenergic drug with examples and write their SAR?[8M]

69. Classify sympagthominetic agent and give their mode of action, uses and structure activity Relationship? [8M]

70 Write the structure, mode of action and uses of metoclopramide?[8M]

71. Enumerate the biosynthesis of Noradrenaline and write the uses of sympathomimetics?[8M]

72. Write the synthesis of Propranolol and Tolazoline?[8M]

73. Outline the classification of adrenergic drugs? Discuss their mechanism of action? Comment on the essential structure features required for the optimum activity of such drugs?[12M]

74. Discuss the chemistry and SAR of adrenergic drugs? Write about synthesis and clinical uses of: [16M]
a) Adrenaline
b) Isoproterenol
c) Terbutaline.

75. Outline the synthesis of amphetamine?[4M]

76. What are general structural requirements for adrenoreceptor agonists? Describe the mode of action of such drugs?[8M]

77. Give the synthesis and medicinal uses of dichloroisoproterenol, ephedrine and salbutamol?[12M]

78. Give a comprehensive account of sympathomimetic drugs covering their classification, SAR and mode of action?[8M]

79. Describe the synthetic procedure if any two important sympatholytic agents?[8M]

80. Write about synthesis, mechanism of action and clinical uses of : [12M]
a) Nylidrin
b) Hydroxyamphetamine
c) Naphazoline.

81. Give your analytical and synthetic evidences to establish the structure of Ephedrine?[8M]

82. What are indirectly acting adrenergic drugs? Discuss the chemistry, synthesis and clinical uses of amphetamine, cyclopentamine, naphazoline, xylometazoline and ephedrine?[16M]

83. How do you prepare :[12M]
a) Metaraminol
b) Propranolol
c) Dichloroisoproterenol
d) Butoxamine.

84. What are adrenergic blockers? Discuss the chemistry and SAR of B- adrenergic blocking agents with examples?[12M]

85. Give a detailed account on chemistry of :[8M]
a) Ergot alkaloids
b) Selective a-receptor stimulants
c) Selective B2-adrenergic stimulants.

86. Define H 1-redeptor blockers? Give the classification by giving suitable examples?[8M]

87. Write the structure activity relationships of H1-receptor blockers?[4M]

88. What are histamine receptors? Write a brief account on histamine receptor?[8M]

89. What are antihistamines? Write the differences between H1-receptor blockers and H2-receptor blockers?[8M]
90. Outline the synthesis of any two important H1-receptor blockers?[8M]
91. Write the structure, mode of action and uses of Ranitidine and Terfenadine? [8M]
92. Classify with examples the antihistaminic agents and discuss their general mode of action and uses?[8M]
93. What are antihistamines? Classify them with examples and write their mode of action? [8M]
94. Outline the synthesis and uses of :[16M]
    a) Diphennhydramine
    b) Chlorpheniramine
    c) Chlorpromazine
    d) Cimetidine.
95. Classify antiallergenic giving examples? Write the synthesis of two compounds selecting from each class?[8M]
96. Discuss the mode of action of H1-receptor antagonists?[4M]
97. Write the chemical name and synthesis of one H1-receptor antagonist from each of the following groups :[12M]
    a) Aminoalkyl ethers
    b) Etheylenediamines
    c) Phenothiazines.
98. How do you prepare :[8M]
    a) Carbinoxamine
    b) Bromodiphenhydramine
    c) Pyrilamine.
99. Write the names and structure of H 1-receptor antagonists possessing pyridine and piperidine moieties?[8M]
100. Discuss the SAR of opioid analegesics and indicate the structural similarity among the various chemical classes of this group?[8m]
101. What are anti-tussive agents? Furnish the names and structures of three narcotic and three non-narcotic antitussive agents?[8m]
102. What are opiod analgesics? Describe the chemistry of various morphine derivatives?[8m]
103. What are narcotic antagonists? Explain the chemistry of any two narcotic antagonists?[8m]
104. What are peripherally modified derivatives of morphine? Enumerate various peripherally modified derivatives of morphine with their structures and uses?[8m]
105. What are synthetic morphine derivatives? Discuss the synthesis and clinical uses of any two synthetic derivatives?[8m]
106. What are synthetic analgesics? Explain the synthesis and uses of methadone and etoheptazine?[12m]
107. How do you prepare :[8m]
    a) Nalorphine
    b) Levallorphan.
108. Classify antitussives with examples? How do you prepare caramiphen?[8m]
109. Write notes on :[8m]
    a) Benzonatate
    b) Noscapine
    c) Dextromethorphan.
110. Write notes on :[8m]
    a) Nalorphine

b) Codeine
c) Naltrexone.

111. Classify non-steroidal anti-inflammatory agents giving structures of two drugs for each class. Discuss the mode of action and SAR of aryl alkanoic acids. Outline the synthesis of Ibuprofen?[16m]
112. Write notes on Antipyretics?[8m]
113. Classify analgesics and antipyretics with suitable examples?[8m]
114. Briefly write the mode of action, and structure activity relation of Analgesics and Antipypertics?[12m]
115. Write the synthesis of mefenamic acid?[4m]
116. What are analgesics and antipyretics? Write the mode of action and limitations of salicylates?[8m]
117. Outline the synthesis of :[16m]
    a) Paracetamol
    b) Ibuprofen
    c) Diclofenac
    d) Oxyphenbutazone
    e) Indomethacin
    f) Piroxicam
    g) Phenylbutazone
    h) Naproxen.
118. Write the SAR of N-arylanthanilic acids?[4m]
119. Write the mode of action of NSAIDS?[4m]
120. Define non-steroidal antiflammatry drugs? Classify them according to their chemical moiety? Give details of indolyl and aryl acetic acid derivatives?[12m]
121. Write the synthesis and mechanism of action of Naproxen?[8m]
122. Write about SAR of indole acetic acid derivatives?[4m]
123. How do you prepare Piroxicam and Sulindac?[8m]
124. Given an account of chemistry of :[12m]
    a) Salicylates
    b) Propionic acid derivatives
    c) Anthranilates
    d) Oxicams.
125. What are COX-2 selective inhibitors? Enumerate the advantages of COX-2 inhibitors over Cox-1 inhibitors? Write the structure and clinical uses of any two COX-2 selective inhibitors?[16m]
126. What are NSAIDS? Discuss the general chemical properties of NSAIDS with examples?[8m]
127. Write notes on :16m]
    a) Naproxen
    b) COX-2 selective inhibitors
    c) Sulindac
    d) Mefenamic acid.
128. What are thyroid hormones? Discuss the production and chemistry of thyroid hormones?[8m]
129. What are thyroid drugs? Write a note on chemistry of levothyroxine?[8m]
130. What are anti-thyroid drugs? Discuss the mechanism of action and chemistry of carbimazole, propyl thiouracil and methimazole?[16m]
131. Write notes on Anti-thyroid drugs? [8m]
132. Write relevant uses of following? [4 M]
    a) Timolol
    b) Clidinium
    c) Antazoline

d) Cimetidine.

133. Write structure of following? [8 M]
    a) Fentanyl
    b) Methadone
    c) Loperumide
    d) Diphenoxylate.
134. Write structure IUPAC and uses of following? [16 M]
    a) Aspirin
    b) Ibuprofen
    c) Naproxen
    d) Indomethacin.
135. Write synthesis of Aspirin and Naproxen? [8 Marks]
136. Write structure, mechanism of action and synthesis of naproxen? [8 M]
137. Write structure and relevant use of Diphenhydramine? [4 M]
138. Write structure and relevant use of Doxylamine? [4 M]
139. Write structure and IUPAC name of following? [12 M]
    a) Pyrilamine
    b) Pheniramine
    c) Tuimeprazine
    d) Cyclizine.
140. Write structure and IUPAC name of following? [12 M]
    a) Meclizine
    b) Cyproheptadine
    c) Antazoline
    d) Cimetidine.
141. Write structure and IUPAC name of following? [12 M]
    a) Rantidine
    b) Famotidine
    c) Naloxane
    d) Naltrexone
142. Write structure and uses of Benztropine? [4 M]
143. Write structure, mode of action and uses of Dicyclomine? [4 M]
144. Write structure of following? [8 M]
    a) Cyclopentolate
    b) Clidinium
    c) Terbytaline
    d) Isoproterenol.
145. Write structure and uses of any two direct-acting adrenergic agents?[8 M]
146. Write structure and uses of any two indirectly-acting adrenergic agents? [8 M]
147. Write structure of following? [8 M]
    a) Metoprolol
    b) Timolol
    c) Prazosin
    d) Tolazoline.
148. Write structure, mode of action and uses of Bethanechol? [4 M]
149. Write structure, mode of action and uses of Carbachol? [4 M]
150. Write structure, mode of action and uses of Methacholine? [4 M]
151. Write structure, mode of action and uses of Neostigmine? [4 M]

152. Write structure, mode of action and uses of Pyridostigmine? [4 M]
153. Write structure, mode of action and uses of Pralidoxime?[4 M]
154. Write structure, IUPAC and uses of Propantheline?[4 M]
155. Write structure and uses of Trihexyphenidyl?[4 M]
156. Write relevant uses of : [4 M]
    a) Isopropamide
    b) Tropicamide
    c) Procyclidine
    d) Biperiden.
157. Write structure, IUPAC and synthesis of Phenylbutazone? [4 M]
158. Write structure of cox-2 Inhibitors?[4 Marks]
159. Differentiate between Cox-1 and Cox-2?[4 Marks]

SUBJECT: PHARMACEUTICAL ANALYSIS V (BP-803)

QUESTION CARRIES 2 MARKS

1. Define Chromatography
2. What is column chromatography
3. What is Adsorption column chromatography
4. What is Frontal,
5. What is displacement
6. What is elution analysis
7. What is column efficiency
8. What is Partition chromatography
9. What is Ion exchange Chromatography
10. What is, Ion exchange resins
11. What is ion exchangers
12. What is Paper chromatography
13. What is Descending chromatography
14. What is Ascending chromatography
15. What is Radial multiple chromatography
16. What is two dimensional chromatography
17. What is retention factor
18. What is Thin layer chromatography
19. What is Rf value
20. What is Gas chromatography
21. What is gas-liquid chromatography
22. What is gas-solid chromatography
23. What is Quantitative analysis
24. What is High Performance Thin layer chromatography
25. What is High Performance Liquid chromatography
26. What is Solvent treatment systems
27. What is Gel chromatography
28. What is Carrier gas
29. What is Columns
30. What is stationary phases

QUSTIONS CARRIES 4 MARKS

31. Write Note On classification of chromatography.
32. Write Note On Preparation of column
33. Write Note On Factors affecting column efficiency
34. Write Note On Partition chromatography
35. Write Note On Principle Ion exchange Chromatography
36. Write Note On Properties of ion exchangers
37. Write Note on Factors affecting ion exchange.
38. Write Note On Mechanism of ion exchange process
39. Write Note On Preparation of column
40. Write Note On Development Techniques for Frontal, displacement and elution analysis

41. Write Note On Choice of filter papers
42. Write Note On two dimensional chromatography
43. Write Note On Factors affecting retention factor
44. Write Note On Thin layer chromatography
45. Write Note On Principle of Thin layer chromatography
46. Write Note On Gas chromatography Theory
47. Write Note On High Performance Thin layer chromatography
48. Write Note On Principle of High Performance Thin layer chromatography
49. Write Note On High Performance Liquid chromatography
50. Write Note On Principle of High Performance Liquid chromatography
51. Write Note On Gel chromatography
52. Write Note On Principle of Gel chromatography
53. Write Note On column packing material
54. Write Note On instrumentation Gel chromatography
55. Write Note On Mechanism of ion exchange process

QUSTIONS CARRIES 8 MARKS

56. Write in details about Chromatography
57. Write in details about Column Chromatography
58. Write in details about Ion exchange Chromatography
59. Write in details about Paper chromatography
60. Write in details about Thin layer chromatography
61. Write in details about Gas chromatography
62. Write in details about High Performance Thin layer chromatography
63. Write in details about High Performance Liquid chromatography
64. Write in details about Gel chromatography
65. Write in details about Partition chromatography.
66. Write in details about, two dimensional chromatography
67. Write in details about Mechanism of ion exchange process
68. Write in details about Detectors in Gas chromatography
69. Write in details about Detectors of HPLC
70. Write in details about gas-solid chromatography
71. Write in details about electron capture and thermal conductivity detector
72. Write in details about gas-liquid chromatography
73. Write in details about Radial multiple chromatography
74. Write in details about Instrumentation High Performance Thin layer chromatography
75. Write in details about Instrumentation, High Performance Liquid chromatography
76. Write in details about Instrumentation, Gel chromatography
77. Write in details about Instrumentation, Column Chromatography
78. Write in details about method of TLC
79. Write in details about theory of gas chromatography
80. Write in details about choice of filter paper.

SUBJECT: CLINICAL PHARMACOTHERAPEUTICS II (BP-804)

8 marks question

1. Explain the etiology of skin cancer.
2. Explain the pathogenesis of skin cancer.
3. Describe briefly the etiopathogenesis of skin cancer.
4. Give the treatment approach for melanoma
5. Give the treatment approach for skin cancer.
6. Explain the etiopathogenesis of skin cancer.
7. Explain the etiology of tuberculosis.
8. Explain the pathophysiology of tuberculosis.
9. Explain the etiopathogenesis of tuberculosis.
10. Explain the treatment of tuberculosis.
11. Explain the pathogenesis of respiratory tract infections.
12. Explain the pathophysiology of respiratory tract infections.
13. Explain the etiology of respiratory tract infections.
14. Explain the etiopathogenesis of respiratory tract infections.
15. Explain the treatment of respiratory tract infections.
16. Explain the etiology of urinary tract infection.
17. Explain the pathophysiology of urinary tract infections.
18. Explain the treatment of urinary tract infections.
19. Explain the etiopathogenesis of urinary tract infections.
20. Explain the treatment of malaria.
21. Explain the pathology of malaria.
22. Explain the etiology of malaria.
23. Explain the eiopathogenesis of malaria.
24. Explain the pathogenesis of AIDS
25. Explain the treatment of AIDS
26. Describe the etiopathogenesis of AIDS.
27. Explain the pathogenesis of viral infection
28. Explain the etiopathogenesis of viral infection.
29. Explain the pathophysiology of fungal infection.
30. Explain the pathogesis of fungal infection.
31. Explain the treatment of fungal infection.
32. Explain the etiopathogenesis of fungal infection.
33. Explain the pathophysiology of gonorrhea.
34. Explain the pathophysiology of sexually transmitted disease.
35. Explain the treatment of gonorrhea.
36. Explain the treatment of sexually transmitted disease.
37. Explain the etiology of syphyllis.
38. Explain the treatment of syphyllis.
39. Describe in detail about carcinogenesis responsible for inducing malignancy.
40. Describe the principles of cancer treatment.
41. Explain the treatment of breast cancer.
42. Explain the etiology of breast cancer.
43. Explain the pathology of breast cancer.
44. Explain the etiopathogenesis of breast cancer.
45. Explain the treatment of leukemia.

46. Explain the etiology of leukemia.
47. Explain the pathophysiology of leukemia.
48. Explain the etiopathogenesis of leukemia.
49. Explain the etiology of colorectal cancer.
50. Explain the pathophysiology of colorectal cancer.
51. Explain the etiopathogenesis of colorectal cancer.
52. Explain the etiology of lung cancer.
53. Explain the treatment of lung cancer.
54. Explain the etiology of prostate cancer.
55. Explain the pathophysiology of prostate cancer.
56. Explain the etiopathogenesis of prostate cancer.
57. Explain the pathology of prostate cancer.
58. Explain the treatment of prostate cancer.
59. Explain the pathogenesis of diabetes mellitus.
60. Explain the treatment of diabetes mellitus.
61. Explain the treatment of hyperthyroidism.
62. Describe in detail about thyrotoxicosis.
63. Describe in detail about cushing's syndrome.
64. Describe the etiology of cushing's syndrome.
65. Describe the treatment of cushing's syndrome.
66. Describe in detail about addison's disease.
67. Describe the applications of gene therapy.
68. Explain the approach of gene therapy.
69. Describe the applications of stem cell therapy.
70. Explain the approach of stem cell therapy.
71. Describe the drug therapy of pediatrics.
72. Describe the drug therapy of geriatrics.
73. Describe the drug therapy for pregnancy.
74. Describe the drug therapy for lactating mothers.
75. Describe briefly the safety regulation of pharmacovigilance.
76. Describe briefly the WHO programme of pharmacovigilance.
77. What is pharmacovigilance, explain in brief its different aspects.

16 marks question

1. Describe the pharmacotherapy of skin cancer.
2. Describe the pharmacotherapy of tuberculosis.
3. Explain the pharmacotherapy of respiratory tract infections.
4. Describe the pharmacotherapy of malaria.
5. Describe the pharmacotherapy of AIDS
6. Describe the pharmacotherapy of fungal infections.
7. Describe the pharmacotherapy of gonorrhea.
8. Describe the pharmacotherapy of sexually transmitted disease.
9. Explain the pharmacotherapy of breast cancer.
10. Explain the pharmacotherapy of leukemia.
11. Explain the pharmacotherapy of colorectal cancer.
12. Explain the pharmacotherapy of lung cancer.
13. Explain the pharmacotherapy of prostate cancer.

14. Explain the pharmacotherapy of skin cancer.
15. Explain the pharmacotherapy ofdiabetes mellitus.
16. Explain the pharmacotherapy of hyperthyroidism.
17. Explain the pharmacotherapy of cushing's syndrome.
18. Explain the pharmacotherapy of addison's disease.

SUBJECT: INDUSTRIAL PHARMACOGNOSY (BP-805)

SN	Questions	Marks
	Importance and status of Herbal Medicine	
1	Define the term herbal medicine and give its importance in the field of pharmacy.	08
2	What do you understand by the term herbal medicine and explain the role of herbal drug in the field of pharmaceutical field.	08
3	Write a short note on the importance of herbal medicine.	08
4	What is the role of Ayurvedic system in human healthcare?	08
5	Justify the statement "herbs are safer than synthetic drug".	08
6	Give status of herbal medicine in Indian market.	08
7	Explain the significance and present status of herbal medicine.	10
8	Differentiate between Ayurvedic and modern dosage form.	08
9	Define herbal drug. What is the importance of herbal care in health care?	10
10	Write a short note on the merits and demerits of herbal medicine.	12
	Phytopharmaceuticals	
11	Describe in detail the isolation and estimation of quinine.	12
12	Write a short note on active chemical constituent, quinine.	12
13	Give the biological source of quinine and give its isolation method.	12
14	What do you mean by Phytopharmaceuticals? Give industrial method of isolation of quinine.	16
15	How will you isolate the quinine from *Cinchona* species?	12
16	Differentiate between the term extraction and isolation. Give method of isolation of quinine.	16
17	Elaborate the isolation method of quinine and give the role of it in pharmacy field.	12
18	Write the method of isolation of Quinoline alkaloidal drug.	12
19	How will you isolate quinine by industrial method? Give its role in healthcare.	12
20	Give synonym, biological source and chemical constituent of cinchona species. Write a note on isolation of Quinine.	16
21	Define alkaloids. Write distribution, isolation and purification of quinine.	16
22	Write biological source of Quinine, its uses and isolation.	12
23	Outline the isolation of quinine with its use.	08
24	Describe in detail the isolation and estimation of digoxin.	12
25	Write a short note on active chemical constituent, digoxin.	04
26	Give the biological source of digoxin and give its isolation method.	10
27	What do you mean by Phytopharmaceuticals? Give industrial method of isolation of cardiac glycoside.	10
28	How will you isolate the cardiac glycoside?	08
29	Differentiate between the term extraction and isolation. Give method of isolation of cardiac glycoside.	16
30	Elaborate the isolation method of digoxin and give the role of it in pharmacy field.	12
31	Write the note on cardiac glycoside with its isolation method.	12
32	How will you isolate digoxin by industrial method? Give its role in healthcare.	12
33	Give synonym, biological source and chemical constituent of any one cardiac glycoside drug. Write a note on isolation of digoxine.	12
34	Define alkaloids. Write distribution, isolation and purification of digoxin.	12
35	Write biological source of digoxin, its uses and isolation.	10
36	Outline the isolation of digoxin with its use.	08
37	Describe in detail the isolation and estimation of sennoside.	10
38	Write a short note on active chemical constituent, sennoside.	08
39	Give the biological source of senna and give isolation method of sennoside.	12
40	What do you mean by Phytopharmaceuticals? Give industrial method of isolation of anthraquinone glycoside.	12
41	How will you isolate the sennoside?	10
42	Differentiate between the term extraction and isolation. Give method of isolation of sennoside.	12
43	Elaborate the isolation method of sennoside and give the role of it in pharmacy field.	12
44	Write the note on anthraquinone glycoside with its isolation method.	12
45	How will you isolate sennoside by industrial method? Give its role in healthcare.	12
46	Give synonym, biological source and chemical constituent of senna. Write a note on isolation of sennoside.	16
47	Define glycoside. Write distribution, isolation and purification of sennoside.	12
48	Write biological source of sennoside, its uses and isolation.	10
49	Outline the isolation of anthraquinone glycoside with its use.	08
50	Describe in detail the isolation and estimation of diosgenin.	10
51	Write a short note on active chemical constituent, diosgenin.	08
52	Give the biological source of diosgenin and give its isolation method.	10
53	What do you mean by Phytopharmaceuticals? Give industrial method of isolation of diosgenin.	10

54	How will you isolate the diosgenin?	08
55	Differentiate between the term extraction and isolation. Give method of isolation of diosgenin.	12
56	Elaborate the isolation method of diosgenin and give the role of it in pharmacy field.	12
57	Write the note on diosgenin with its isolation method.	12
58	How will you isolate diosgenin by industrial method? Give its role in healthcare.	12
59	Give synonym, biological source and chemical constituent of diosgenin. Write a note on isolation of it.	10
60	Define glycoside. Write distribution, isolation and purification of diosgenin.	12
61	Write biological source of diosgenin, its uses and isolation.	10
62	Outline the isolation of diosgenin with its use.	08
63	Describe in detail the isolation and estimation of glycyyhizin.	12
64	Write a short note on active chemical constituent, glycyyhizin with its isolation.	12
65	Give the biological source of glycyyhizin and give its isolation method.	12
66	What do you mean by Phytopharmaceuticals? Give industrial method of isolation of glycyyhizin.	12
67	How will you isolate the glycyyhizin from liquorice?	12
68	Differentiate between the term extraction and isolation. Give method of isolation of glycyyhizin.	12
69	Elaborate the isolation method of glycyyhizin and give the role of it in pharmacy field.	10
70	Write the note on glycyyhizin with its isolation method.	10
71	How will you isolate glycyyhizin by industrial method? Give its role in healthcare.	12
72	Give synonym, biological source and chemical constituent of liquorice. Write a note on isolation of it.	12
73	Write distribution, isolation and purification of glycyyhizin.	12
74	Write biological source of glycyyhizin, its uses and isolation.	10
76	Outline the isolation of glycyyhizin with its use.	10
77	Describe in detail the isolation and estimation of andrographiolides.	12
77	Write a short note on active chemical constituent, andrographiolides with its isolation.	12
78	Give the biological source of andrographiolides and give its isolation method.	12
79	What do you mean by Phytopharmaceuticals? Give industrial method of isolation of andrographiolides.	12
80	How will you isolate the andrographiolides from kalmegh?	10
81	Differentiate between the term extraction and isolation. Give method of isolation of andrographiolides.	12
82	Elaborate the isolation method of andrographiolides and give the role of it in pharmacy field.	12
83	Write the note on andrographiolides with its isolation method.	10
84	How will you isolate andrographiolides by industrial method? Give its role in healthcare.	12
85	Give synonym, biological source and chemical constituent of bhuinimb. Write a note on isolation of it.	12
86	Write distribution, isolation and purification of andrographiolides.	10
87	Write biological source of andrographiolides, its uses and isolation.	12
88	Outline the isolation of andrographiolides with its use.	10
89	Describe in detail the isolation and estimation of rutin.	10
90	Write a short note on active chemical constituent, rutin with its isolation.	12
91	Give the biological source of rutin with its isolation method.	10
92	What do you mean by Phytopharmaceuticals? Give industrial method of isolation of rutin.	12
93	How will you isolate the andrographiolides from herbal source?	10
94	Differentiate between the term extraction and isolation. Give method of isolation of rutin.	12
95	Elaborate the isolation method of rutin and give the role of it in pharmacy field.	08
96	Write the note on rutin with its isolation method.	08
97	How will you isolate rutin by industrial method? Give its role in healthcare.	10
98	Give synonym, biological source and chemical constituent of rutin. Write a note on isolation of it.	10
99	Write distribution, isolation and purification of rutin.	12
100	Write biological source of rutin, its uses and isolation.	12
101	Outline the isolation of rutin with its use.	08
102	Discuss isolation and characterization of rutin.	10
103	Describe in detail the isolation and estimation of guggul lipid.	12
104	Write a short note on active chemical constituent, guggul lipid with its isolation.	12
105	Give the biological source of guggul and give its isolation method.	12
106	What do you mean by Phytopharmaceuticals? Give industrial method of isolation of guggul lipid.	12
107	How will you isolate the guggul lipid from *commiphora* species?	10
108	Differentiate between the term extraction and isolation. Give method of isolation of guggul lipid.	12
109	Elaborate the isolation method of guggul lipid and give the role of it in pharmacy field.	12
110	Write the note on guggul lipid with its isolation method.	10
111	How will you isolate guggul lipid by industrial method? Give its role in healthcare.	10
112	Give synonym, biological source and chemical constituent of guggul. Write a note on isolation of it.	12
113	Write distribution, isolation and purification of guggul lipid.	08
114	Write biological source of guggul lipid, its uses and isolation.	10
115	Outline the isolation of guggul lipid with its use.	08
116	Discuss isolation and characterization of guggul lipid.	10
117	Mentioned the characterization and estimation of quinine, diosgenin and rutin.	16

	Herbal Formulation	
118	Describe physic-chemical properties for different dosage forms of herbal formulation.	12
119	Define the term Ayurvedic and modern dosage form. Explain the different stages of herbal formulation.	12
120	What do you mean by herbal dosage form and give the preparation method of Arista.	10
121	Write a short note on the method of preparation of Asava and Arista.	10
122	How Asava, Arista are prepared and write its evaluation parameters.	16
123	Give the preparation method of Asava, Arista and differentiate between them.	10
124	Write a short note on the fermentation product of Ayurvedic dosage form.	12
125	Write a note on different methods used to detect and estimate the amount of heavy metals in herbal preparation.	10
126	How will you determine the alcohol content in Asava and arista.	08
128	Explain the present status of herbal cosmetic technology in India.	08
129	Give formulation aspects of hair care preparation.	08
130	Describe preparation of herbal skin care cream.	08
131	Define and explain the preparation of Churna, Bhasma.	10
132	How do you identify the arsenic in herbal preparation?	08
133	Write the permissible limits of heavy metals present in herbal extracts.	12
134	Write a note on ayurvedic solid dosage herbal formulation with its method of preparation.	10
135	Write a note on ayurvedic liquid dosage herbal formulation with its method of preparation.	12
136	What do you mean by Unani formulation and give their evaluation parameter.	12
137	What do you mean by Majooms and give the evaluation parameter of it.	12
138	What do you mean by Safoof and give the evaluation parameter of it.	12
139	Why the heavy metals from the herbal formulation should be removed, explain with examples.	10
140	What do you mean by heavy metal? Enlist different methods to determine heavy metals from herbal preparation and explain any two.	16
141	What do you mean by Asava and Arishta? How alcohol is prepared in the formulation of it. How the alcohol content in it is determined.	12
	Chemotaxonomy	
142	Write a short note on Chemotaxonomy.	08
143	What do you understand by Chemotaxonomy and give its role in the field of Pharmacy.	10
144	Define the term Chemotaxonomy and give its advantages and disadvantages.	08
145	Elaborate the term Chemotaxonomy and give its application in pharmacy.	12
146	What do you mean by chemotaxonomy? Give its merits and demerits.	08
147	Describe briefly chemotaxonomical aspects of glycosides.	06
148	Describe briefly chemotaxonomical aspects of alkaloids.	06
150	Describe briefly chemotaxonomical aspects of secondary metabolites.	06
151	Describe briefly chemotaxonomical aspects and its applications.	08
152	Briefly describe the chemotaxonomy of medicinal plants. Add a note on alkaloids.	08
153	Briefly describe the chemotaxonomy of medicinal plants. Add a note on glycosides.	08
154	Mentioned the importance of chemotaxonomy in Pharmacognosy.	08
155	Write a short note on significance of chemotaxonomy.	08
156	Write a short note on taxonomy of lower plants.	08
	Herbal Cosmetics	
157	Write in detail the role of Amla, Heena, Hibiscus and Tea in the formulation of Hair conditioners.	08
158	What are cosmetics? Give the merits of herbal cosmetic over synthetic cosmetics.	08
159	Describe briefly the industrial significance of Phytocosmetics.	10
160	What are Phytocosmetics? Give the status of herbs in herbal industrial.	08
161	Write a note on shampoo and give the herbs used in the preparation and formulation of it.	10
162	Write a note on conditioners and give the herbs used in the preparation and formulation of it.	10
163	Write a note on hair darkner and give the herbs used in the preparation and formulation of it.	10
164	Write a note on skin care herbs.	08
165	Describe briefly the hair disease. Add a note on causes of greying of hair.	08
166	What are the causes of dandruff? Describe the plants used to treat dandruff.	08
167	Herbs used in shampoo preparations.	08
168	Herbs used as conditioners.	08
169	Herbs used in hair darkner preparations.	08
\170	Herbs used in skin care preparations.	08
171	Short note on Antidandruff herbs.	08
172	Short note on skin care herbs.	08
173	Describe and add a note on common skin diseases and its treatment with herbs.	10
174	Write a note on herbal plants used for shampoo formulation.	08
175	Write a note on herbal plants used for conditioner formulation.	08
176	Write a note on herbal plants used for hair darkner formulation.	08

177	What do you mean by psoriasis? How it can be treated naturally.	08
178	Write a note on the herbs used in herbal formulation.	12
179	Give biological source of amla and write a note on its role in the herbal formulation.	10
180	Give biological source of henna and write a note on its role in the herbal formulation.	10
181	What are herbal cosmetics and mention uses of Turmeric in skin care.	08
182	What are herbal cosmetics and mention uses of Korphad in skin care.	08
183	What are herbal cosmetics and mention uses of Sandalwood in skin care.	08
184	What are herbal cosmetics and mention uses of Henna in hair care.	08
185	What are herbal cosmetics and mention uses of Hibiscus in hair care.	08
186	What are herbal cosmetics and mention uses of Amla in hair care.	08
187	What are herbal cosmetics and mention uses of Shikakai in hair care.	08
188	What are herbal cosmetics and mention uses of Soapnut.	08
189	What are herbal cosmetics and mention uses of Tea.	08
190	Mention uses of Liquorice in herbal industry.	10
191	Write a anatomy of skin and give the basic evaluation parameter of skin care herbal product.	12
192	Write anatomy of skin and give the basic evaluation parameter of herbal shampoo.	12
193	Define the term shampoo and write a note on evaluation parameter of it.	12
194	Write a note on evaluation parameter of herbal skin care product.	12
195		
Quality Control in the Production Chain of Herbal Product		
196	Elaborate the term Quality control and explain the role of it in herbal formulation.	12
197	Write a short note on the Quality control of herbal product.	12
198	Discuss the term Quality control.	08
199	Write a short note on the Product and Production chain of herbal product.	16
200	Explain diagrammatically about Product and Production chain of herbal product.	16
201	What do you understand by Integral Quality Control and give its benefits in herbal product.	12
202	What is the basic requirement of Quality control of herbal product?	12
203	How will you justify that Integral Quality Control is the basic of herbal product / formulation.	10
Neutraceuticals		
204	Define and classify Neutraceuticals.	08
205	What is the role of neutraceutical in different diseases?	08
206	Give brief Classification on neutraceutical and write a exhaustive note on diabetic product of neutraceutical.	10
207	Write a short note on neutraceutical / functional food.	08
208	Role of neutraceutical in health and disease prevention.	12
209	Justify the proverb that "neutraceutical is a link between nutrition and medicine."	10
210	Define and classify neutraceutical. Write the role of it in diabetic and cardiovascular diseases.	12
211	Neutraceutical for obesity patients.	08
212	Write a note on neutraceutical as a bright scope and opportunity in healthcare market.	10
213	Explain briefly the concept of neutraceutical products.	12
214	What are Neutraceutical? Classify them with examples. State the importance of probiotics and prebiotics.	12

SUBJECT: PHARMACEUTICAL JURISPRUDANCE (BP-806)

16 Marks Questions

1. Define legislation, pharmaceutical legislation, explain in brief its origin, scope, objective and write note on drug enquiry committee.
2. Explain in brief pharmacy act 1948.
3. Explain in brief central pharmacy council and state pharmacy council.
4. Define ethics, law, explain pharmaceutical code of ethics, give the professional conduct of pharmacist in relation to his job and trade.
5. Explain professional conduct of pharmacist in relation to his job, trade, to medical profession and to his profession.
6. Define alcohol and explain bonded and non-bonded manufactory.
7. Give the objective for drugs and magic remedy, explain classes of prohibited advertisement and classes of exempted advertisement.

8. Give the objective of drug and cosmetic act, describe all administrative bodies as per drug and cosmetic act.
9. Describe in brief manufacture of drugs and sale of drugs as per drug and cosmetic act.
10. Explain labeling and packaging of drugs, import of drugs as per drugs and cosmetic act.
11. Describe advisory committee for aurvedic, siddha, unani system of medicine according to drug and cosmetic act and explain the import of drug as per drug and cosmetic act.
12. Give the objective of drug and magic remedy, define advertisement.
13. Write in detail the code of pharmaceutical ethics which a pharmacist must follow in relation to his job ,trade and medical profession.
14. What are provision for labeling and packing of drugs as per drug and cosmetic rules,1945 for different formulation.
15. Explain qualification, power and duties of drug inspector under drug and cosmetic act 1940?
16. Give the objective of drug and cosmetic act 1940.explain the provision for import of drug into India.
17. Define hemp and opium derivative .Discuss the administration of the narcotic drug and psychotropic substances act.
18. Write note on licensing authority and controlling authority.

8 Marks Questions

19. Give origin, scope and objective of Indian pharmaceutical legislation.
20. Define pharmaceutical legislation, explain drug enquiry committee, give its scope and objective.
21. Define central council ,give its objective.
22. Give the procedure for registration as pharmacist.
23. Define ethics and law, explain pharmaceutical code of ethics and its professional conduct.
24. Describe the responsibilities of pharmacist in relation to his job and trade.
25. Describe the responsibilities of pharmacist in relation to his profession and medical profession.
26. Give the objective of medicinal and toilet preparation act , define bonded non bonded manufactory and explain bonded manufactory.
27. Define medicinal preparation and toilet preparation explain non bonded manufactory.
28. Classify medicinal and toilet preparation containing alcohol and ware housing of alcohol preparation.
29. Define medicinal preparation and toilet preparation give offense and penalties according medicinal and toilet preparation act.
30. Explain export of medicinal and toilet preparation.
31. Explain or Describe classes of prohibited advertisement.
32. Describe classes of exempted advertisement.
33. Define Magic remedies give its objective, describe classes of prohibited advertisement.
34. Define drug and magic remedy give its objective and describe classes of exempted advertise.
35. Give the objective of drugs and cosmetic act and explain or describe advisory and analytical committee.
36. Describe analytical and executive committee.
37. Explain executive committee.
38. Describe manufacture of drug according to drugs and cosmetic act.
39. Explain sale of drugs as per drugs and cosmetic act.
40. Explain the labeling and packaging of drugs according to drugs and cosmetic act.

41. Explain the import of certain drugs and offences and penalties according to drugs and cosmetic act.
42. Define advertisement, magic remedy and explain classes of prohibited advertisement.
43. Give the objective of narcotic and psychotropic substances act and explain narcotic committees and officers.
44. trace the origin and nature of pharmaceutical legislation in India.
45. Write an essay on history of pharmacy legislation in India.
46. Describe bonded and non bonded laboratories under the medicinal and toilet preparation act ?
47. Describe the manufacture and ware housing of alcoholic preparation under medicinal and toilet preparation act.
48. Write a note on medicinal and toilet and preparation act.
49. Write a note on drug price control order.
50. Give silent feature of drug and magic remedy act.
51. Give silent feature of the packaging and labeling condition of drug.
52. Describe the silent feature of manufacturing sales and import of drugs as per drugs and cosmetic act 1940.
53. Write the function of government analyst.
54. Write a note on drug technical advisory board and drug consultative committee.
55. write short note on narcotic drug and psychotropic substances.
56. Write about the operation which are totally prohibited and controlled under narcotic and psychotropic substances act.
57. Define narcotic drug and psychotropic substances as per narcotic and psychotropic substance act. Describe the offence and penalties under the act.
58. Explain in details procedure for filling a patent.
59. Write note on patent act.
60. Describe in brief patent act.

4 Marks Questions

61. Define pharmaceutical legislation explain its origin and give brief idea about drug enquiry committee.
62. Define pharmaceutical legislation give its scope and objective.
63.Explain central pharmacy council of India.
64. Explain state pharmacy council of India.
65. Differentiate state pharmacy council and joint state pharmacy council.
66. Explain procedure for registration of pharmacist.
67. Explain education regulation for pharmacist and offences and penalties as per pharmacy act.
68. Give the procedure for approval of institution and withdrawal of approval according to pharmacy act 1948.
69. Give procedure for registration as pharmacist.
70. Explain or give offenses and penalties according to pharmacy act 1948.
71. Define ethics, law and explain pharmaceutical code of ethics.
72. Describe responsibilities of pharmacist in relation to his job.
73. Describe responsibilities of pharmacist in relation to his Profession.
74. Describe responsibilities of pharmacist in relation to his trade.
75. Describe responsibilities of pharmacist in relation to medical profession.
76. Explain the offense and penalties according to medicine and toilet preparation act.
77. Explain the export of duty paid good.

78. Describe export under bond.
79. Classify the medicinal and toilet preparation containing alcohol.
80. Describe bonded laboratory.
81. Describe non bonded laboratory.
82. Explain export and medicinal and toilet preparation.
83. Describe calculation of retail price of formulation.
84. Define drug and give its classes of pro habited advertisement .
85. Give objective of drug and magic remedy.
86. Explain the classes of exempted advertisement .
87. Explain schedule A, P, C, L.
88. Explain schedule X,M,N,R.
89. Explain schedule A, B, C, D.
90. Explain schedule M, P, C, S, T.
91. Explain schedule K, L, M, N.
92. Explain schedule O, P , Q ,R.
93. Explain schedule U, V, W, X.
94. Give objective of drug and cosmetic act and explain drug technical advisory board.
95. Describe DTAB (Drug Technical Advisory Board) and Drug Consultative Committee.
96. Write a Short Note on drug Inspector.
97. Write a Short Note on government analyst.
98. Write a Short Note on licensing authority and controlling authority.
99. Write a Short Note on central drug laboratory.
100. Write a Short Note on import of drug or cosmetics.
101. Write a Short Note on loan license and repackaging license.
102. Describe offence and penalties as per drug and cosmetic act.
103. Describe provisions relating to ayurvedic sidhha and unani drug.
104. Write a Short Note on labeling and packaging of drug.
105. Explain classes of prohibited advertisement and classes of exempted advertisements.
106.Define advertisement, magic remedy and give offence and penalties according to drug and magic remedy.
107. Write a note on trends in drug legislation.
108. Explain role of pharmacist in relation to his job.
109. Explain principles and significance of professional ethics.
110. Explain pharmaceuticals ethics with special reference to ethics and law, pharmaceutical code of ethics and professional conduct.
111. Give introduction and objective of pharmacy act.
112. Write the composition and function of joint state pharmacy council.
113. Describe education regulation under pharmacy act.
114. Define the terms according to pharmacy act 1948. Central council central register .
115. Explain education regulation as per pharmacy act 1948 and discuss how it is applicable to state.
116. Describe the state pharmacy council along with its functioning as per pharmacy act 1948.
117. Give objective and background of medicinal and toilet preparation act.
118. What are the offences and penalties under the medicinal and toilet preparation act .
119. Write a procedure for movement of goods from one warehouse to another as per the medicinal and toilet preparation act 1955.
120. Explain powers and duties of excise officers as per the medicinal and toilet preparation (excise duties) act 1955.

121. Write a note on export and import of goods.
122. Write a method for calculation of retail price of drug.
123. Describe the objective behind drug price control order 1995.
124. Describe the method for MAPE calculation for the drug.
125. Explain sale price of bulk drug.
126. Define drug price control order and how to maintain the records.
127. Define advertisement and magic remedies according to act.
128. Aim and objective of the drugs and magic remedies (objectionable advertisement act 1954)
129. Define Standards of quality, adulterated drugs, misbranded drug and i drlugs as per D and C act.
130. Explain duties of government analyst .
131. Define and describe central drug laboratory and give its function.
132. Define coca leaf, opium and hemp as per act.
133. How the prevention of illicit traffic in narcotic drug and psychotropic substances is made by central government and state government.
134. Discuss the functioning of the narcotic drug and psychotropic substances consultative committee as per above act.
135. Define patent and explain the objective of patent act.
136. Define patent, what is the procedure for surrender and revocation of patent .
137. Give the silent features of patent act 1970.
138. Write short note classes exempted advertisement .
139. Write short note classes prohibited advertisement .
140. Give the procedure for restoration of lapsed patent.

2 Marks Questions

141 Explain in brief drug enquiry committee.
142 Define legislation and pharmaceutical legislation.
143 Define medical practitioner and registered pharmacist .
144Define displaced person and registered pharmacist.
145. Define repatriate and Indian university .
146. Give the constitution of PCI.
147. Give the offenses and penalties who is falsely claiming as pharmacist.
148. Define law and ethics.
149. Define code of ethics and law.
150. Explain pharmaceutical code of ethics.
151. Define alcohol, dutiable goods.
152. Define medicinal and toilet preparation.
153. Define bonded manufactory and non-bonded manufactory
154. Define denature spirit and spirit store.
155. Define restricted preparation and unrestricted preparation.
156. Give the requirement for bonded laboratory .
157. Give the exemption from duty for medicinal and toilet preparation.
158. Describe ware house for alcohol preparation.
159. Define bulk drug and brand.
160. Give the objective for drug price control order.
161.Define ceiling price and dealer.
162. Define distributor and existing manufactures.

163. Define formulation and genetic version of a medicine.
164. Define import and local taxes.
165. Define maximum retail price and moving annual turnover.
166. Define new drug and non scheduled formulation.
167. Define national list of essential medicines and pharmacoeconomics.
168. Define price to retailer and wholesaler.
169. Define scheduled formulation and pharmaco economics.
170. Define import and market share.
171. How to calculate ceiling price of a scheduled formulation.
172. Explain calculation of retail prices of formulation.
173. Give drug prices equalization account.
174. Define drug cosmetics.
175. Define board and import.
176. Define patent and proprietary medicine.
177. Define new drug and manufacture .
178. Define repackaging of drug.
179. Define retail sale and wholesale
180. Define new drug and qualified person.
181. Define drug store and repacking drug.
182. Define chemist and druggist.
183. Define inspector and government analyst.
184. Define misbranded drug and adulterated drug.
185. Define spurious drugs and misbranded cosmetics.
186. Define spurious cosmetics and homoeopathic medicine.
187. Classify various administrative bodies according to drugs and cosmetics act.
188. Write short note on DCC.
189. Write short note on DTAB.
190. Give the function of CDL.
p191. Give the qualification for government analyst.
192. Give the duties of government analyst.
193. Give the qualification for licensing authority.
194. Give the qualification of controlling authority.
195. Give the qualification of drug inspector.
196. Define blood bank and large volume parenterals.
197. Write short note on custom collector.
198. Describe labeling of mechanical contraceptive.
199. Enlist the members of provision for aurvedic siddha and unani drugs.
200. Define assignee and controller.
201. Define convention application and exclusive license.
202. Define food and government under taking.
203. Define invention and international application.
204. Define legal representative and medicine.
205. Define patent and patent agent.
206. Define patented articles and patented process.
207. Define patentee and patent of addition.
208. Define person interested and priority date.