Code No. F-7326/PCI

FACULTY OF PHARMACY

B. Pharmacy III - Semester (PCI) (Backlog) Examination, October 2024

Subject: Physical Pharmaceutics – I

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Write the diffusion principles in biologic systems.
2. Define solubility. Write solubility expressions.
3. Write a note on changes in states of matter.
4. Write applications of liquid crystals and eutectic mixtures.
5. Write a note on crystalline state and amorphous.
6. Write the uses of surfactants with examples.
7. Write a note on detergency and solubilization.
8. Classify the complexes.
9. Write the crystalline structure of complexes.
10. What will happens if solutions are Hypertonic or Hypotonic.

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. (a) Write a note on Raoult's law and real solutions.
    (b) What is critical solution temperature? Write its applications.
12. Write about determination and applications of
    (i) Refractive index (ii) Optical rotation
    (iii) Dielectric constant (iv) Dissociation constant.
13. (a) What is surface tension? Explain various methods for determination of surface tension.
    (b) Write a note on buffers and its importance in pharmaceutical and biological systems.

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Write the factors influencing on solubility of drugs.
15. Write a note on mechanisms of solute – solvent interactions.
16. What is Polymorphism. Write its applications.
17. Write a note on HLB scale and its applications.
18. Write the applications of complexation in pharmacy.
19. What is protein binding. Write the importance of protein binding.
20. Write about pH scale. Write methods for determination of pH.
21. Write a note on buffer capacity and maximum buffer capacity. Write Vanslyke's equation.
22. What is isotonicity? Write a note on buffered isotonic solutions and its applications.

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Code No. F-7327/PCI

FACULTY OF PHARMACY

B. Pharmacy III - Semester (PCI) (Backlog) Examination, October 2024

Subject: Pharmaceutical Microbiology

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. What is the role of agar in culture media?
2. Explain the bacterial growth curve.
3. Write about autotrophs and chemotrophs.
4. Write short notes on sterility indicators.
5. Explain about isolation of pure culture.
6. What is meant by MIC and antibiotic?
7. Give the different sources of contamination in aseptic area.
8. List out sources of microbial contaminations in pharmaceuticals.
9. Write in detail about viruses.
10. Enumerate the differences between sterilization and disinfection.

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Explain in detail about the principle and working of an instrument used in moist heat sterilization.
12. Classify disinfectants. Write the mechanism of action and uses of phenolic disinfectants.
13. (a) Give the composition of various media used in the sterility testing of pharmaceutical products.
    (b) What are various approved methods of Sterility testing.

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Differentiate between gram positive and Gram negative cell wall.
15. Explain in detail about Filtration sterilization with merits and demerits.
16. Write briefly about various stages of sterility testing of ophthalmic products.
17. Explain about various factors affecting disinfectants.
18. Explain in detail about replication of fungi.
19. Describe the general procedure of antibiotic assay.
20. Discuss in detail about growth of animal cells in culture.
21. Explain in detail about casein hydrolysis by microroganisms.
22. Explain various types of microbial spoilage.

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Code No: F-7328/PCI

FACULTY OF PHARMACY

B. Pharmacy III - Semester (PCI) (Backlog) Examination, October 2024

Subject: Pharmaceutical Engineering

Time: 3 Hours **Max. Marks: 75**

PART - A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Write Bernoulli's theorem.
2. Mention the different modes of size reduction.
3. List the critical parameters in working of hammer mill.
4. Define Fourier's law.
5. Write the factors affecting filtration.
6. Differentiate between drying and evaporation.
7. What is mean free path and mentions its significance.
8. Mention the problems in solid mixing.
9. What is filter aid and write its importance?
10. Write merits and demerits of tray drier.

PART - B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Write the importance of FMC and EMC in drying rate. Write the construction, working principle, merits and demerits Fluidized bed drier.
12. What is Rectification and mention its significance in construction and working of fractional distillation unit.
13. (a) Write the theories of corrosion.
    (b) Explain the material characteristics, merits and demerits of glass as material for plant construction.

PART - C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Explain the critical factors applicable to end runner mill working and mention its merits and demerits.
15. Write construction and working of Rotameter.
16. Describe the principle of determining particle size and its distribution using sieve shaker.
17. Describe construction and working of multi-pass heat interchanger.
18. Write the characteristics of liquid mixing equipment.
19. Explain the climbing film evaporator and its merits.
20. Explain the equipment and functioning of freeze drier.
21. Describe perforated basket centrifuge with the help of a diagram and mention its applications.
22. Write different conveying equipment in material handling systems.

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Code No: F-7325/PCI

FACULTY OF PHARMACY

B. Pharmacy III - Semester (PCI) (Backlog) Examination, October 2024

Subject: Pharmaceutical Organic Chemistry-II

Time: 3 Hours **Max. Marks: 75**

PART - A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Write the structure and uses of Chloramine.
2. Define Saponification value and write its significance.
3. What is drying of oils?
4. Write the mechanism of Friedel craft alkylation.
5. Why – NH2 group is activating and ortho, Para directing group and why NO_2 group is deactivating and meta directing explain.
6. Write the structure & uses of Naphthol.
7. Write any two reactions of Cyclobutane.
8. Write the structure and uses of Triphenylmethane.
9. Write any two reactions of Amines.
10. Explain o-nitrophenol is more acidic than phenol.

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Write the synthesis and applications of aryl diazonium salts.
12. Explain the effect of substituents on reactivity and orientation of electrophilic substitution reactions of mono substituted benzene.
13. Write the preparation and electrophilic substitution reactions of Naphthalene and Anthracene.

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Write any two methods of preparation and reactions of phenols.
15. Explain about the Sachse Mohr's theory.
16. Draw and explain the molecular orbital picture of benzene.
17. Explain in detail about Huckel's rule with examples.
18. Explain in detail about Basicity of amines.
19. Describe in detail about Baeyer's strain theory.
20. Write any two methods of preparation and reactions of Cyclopropane.
21. Discuss about Hydrolysis and Hydrogenation reactions of fats and oils.
22. Write the structure and uses of (a) DDT (b) Saccharin (c) Cresol, (d) Diphenyl methane (e) BHC.

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Code No: F-7173/PCI

FACULTY OF PHARMACY

B. Pharmacy III - Semester (PCI) (Main & Backlog) Examination, April 2024

Subject: Pharmaceutical Microbiology

Time: 3 Hours **Max. Marks: 75**

PART-A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. What is the role of agar in culture media?
2. Explain the bacterial growth curve.
3. Write about autotrophs and chemotrophs.
4. Write short notes on sterility indicators.
5. Explain about isolation of pure culture.
6. What is meant by MIC and antibiotic?
7. Give the different sources of contamination in aseptic area.
8. List out sources of microbial contaminations in pharmaceuticals.
9. Write in detail about viruses.
10. Enumerate the differences between sterilization and disinfection.

PART-B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Explain in detail about the principle and working of an instrument used in moist heat sterilization.

12. Classify disinfectants. Write the mechanism of action and uses of phenolic disinfectants.

13. (a) Give the composition of various media used in the sterility testing of pharmaceutical products.
    (b) What are various approved methods of Sterility testing?

PART-C

Note: Answer any seven questions **(7 x 5 = 35 Marks)**

14. Differentiate between gram positive and Gram negative cell wall.
15. Explain in detail about Filtration sterilization with merits and demerits.
16. Write briefly about various stages of sterility testing of ophthalmic products.
17. Explain about various factors affecting disinfectants.
18. Explain in detail about replication of fungi.
19. Describe the general procedure of antibiotic assay
20. Discuss in detail about growth of animal cells in culture.
21. Explain in detail about casein hydrolysis by microorganisms.
22. Explain various types of microbial spoilage.

Code No: F-7172/PCI

FACULTY OF PHARMACY

B. Pharmacy III - Semester (PCI) (Main & Backlog) Examination, March 2024

Subject: Physical Pharmaceutics- I

Time: 3 Hours **Max. Marks: 75**

PART-A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. State the Gibbs phase rule.
2. Write a note on Raoult's law.
3. Define latent heat and sublimation critical point.
4. Write a note on eutectic mixtures.
5. What is interfacial tension?
6. Write a note on CMC.
7. Write a note on complexation and drug action.
8. Write a note on surface free energy.
9. Write a note on buffers and its uses.
10. What is Isotonicity?

PART-B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Write a note on solubility expressions and factors influencing on solubility of drugs.

12. Write a note on (a) HLB Scale (b) Surfactants (c) Detergency

13. (a) What is protein binding? Write its importance.
    (b) Write a note on buffers and its importance in pharmaceutical and biological systems.

PART-C

Note: Answer any seven questions **(7 x 5 = 35 Marks)**

14. What the solute- solvent interactions.
15. Explain the factors influencing on solubility of drugs.
16. Write methods to determine PKa and write its applications.
17. What is surface tension? Explain various methods for determination of surface tension.
18. What is complexation? Write the classification of complexation.
19. Write about pH scale. Write methods for determination of pH.
20. What is buffer capacity? Write Van-Slyke's equation for buffer capacity and maximum buffer capacity.
21. Write a note on buffers in pharmaceutical and biological systems.
22. Write a note on spreading coefficient and adsorption at solid interface.

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Code No: F-7174/PCI

FACULTY OF PHARMACY

B. Pharmacy III - Semester (PCI) (Main & Backlog) Examination, April 2024

Subject: Pharmaceutical Engineering

Time: 3 Hours **Max Marks: 75**

PART-A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Enlist the merits and demerits of a sieve shaker.
2. Write the mechanisms of size reduction.
3. Differentiate between evaporation and drying.
4. Write the principle of distillation under reduced pressure.
5. List objectives and applications of drying.
6. Write factors affecting mixing.
7. Write the application of centrifugation.
8. Mention various filteration techniques & equipment.
9. Classify the ferrous material for plant construction.
10. Write different types of corrosion.

PART-B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Describe Bernoulli's theorem and write the construction, working principle of Orifice meter.

12. Explain the concept of drying rate curve and write its importance in construction & working of freeze dryer.

13. Write the factors affecting selection of plant materials and classify them.

PART-C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Explain the losses of energy during flow of fluids.
15. Describe the construction and working of a fluid energy mill.
16. Compare and contrast heat interchanger and heat exchanger.
17. Explain the factors influencing evaporation.
18. Write the mechanisms of solid mixing and mention differences between solid and liquid mixing.
19. Write working principle of Silverson emulsifier with help of diagram.
20. Describe the working principle, merits and demerits of Seidtz filter.
21. Write the construction and working principle of semi continuous centrifuge.
22. Explain the material characteristics, advantages and disadvantages of organic nonmetals for plant construction.

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Code No: F-7171/PCI

FACULTY OF PHARMACY

B. Pharmacy III - Semester (PCI) (Main & Backlog) Examination, March 2024
Subject: Pharmaceutical Organic Chemistry-II

Time: 3 Hours **Max. Marks: 75**

PART-A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Discuss about activating and deactivating groups with examples.
2. Write the structure and uses of Aryl diazonium salts.
3. How do you differentiate fats and oils?
4. Write any two methods of preparation of Aromatic Amines.
5. Explain briefly about Huckels rule.
6. Give the Resonance.structure of Benzene.
7. Write about angle strain.
8. Write the structure and uses of Resorcinol and Naphthol.
9. Give the structure and medicinal uses of Anthracene.
10. Write the structure and uses of DDT.

PART-B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. (a) Explain Bayer's strain theory.
    (b) Write the synthesis and reactions of Naphthalene.

12. Describe the Nitration, Sulphonation and Halogenation reactions of Benzene with mechanisms**.**

13. (a) Discuss the principle and significance of Saponification value and Acid value.-**6+4**
    (b) Explain the Basicity of Aromatic amines.

PART-C

Note: Answer any seven questions **(7 x 5 = 35 Marks)**

14. Explain Friedel crafts alkylation and its limitations**.**
15. Draw and explain the molecular orbital picture of Benzene.
16. Write the methods of preparation and chemical reactions of Phenanthrene**.**
17. Write the note on Sache mohrs theory and give the chemical reactions of Cyclobutane.
18. Explain the principle and significance of Iodine value.
19. Discuss the Acidity of phenols.
20. Explain the reactions of Benzoic acid.
21. Discuss about Hydrolysis and Hydrogenation reactions of fats and oils.
22. Explain the effect of E.W groups on reactivity and orientation of monosubstituted Benzenes with example.

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