Code No. D-8237/PCI

FACULTY OF PHARMACY

B. Pharmacy III Semester (PCI) (Main) Examination, May 2022

Subject: Pharmaceutical Organic Chemistry-II

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

PART - A

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

1 Explain Friedel-Crafts alkylation of benzene with an example.
2 Define the iodine value and give its significance.
3 Write the structure and uses of Saccharin.
4 Define angle strain. Explain the reasons for the same.
5 Write any two reactions of benzoic acid.
6 Write the structure & uses of resorcinol.
7 Define polynuclear aromatic hydrocarbons with examples.
8 Write the structure and uses of tripenylmethane.
9 Write the special reactions of cyclopropane.
10 What is rancidity of oils? How can it be prevented?

PART - B

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

11 (a) Explain the acidity of aromatic carboxylic acids with special emphasis on the effect of substituents on their acidity.
(b) Write about the Reimer-Tiemann reaction of phenols.

12 Explain the effect of substituents on reactivity and orientation of electrophilic substitution reactions of monosubstituted benzene.

13 (a) Write the preparation and electrophilic substitution reactions of anthracene.
(b) Define acid value. Describe its significance and determination.

PART - C

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

14 Define the terms aromaticity & resonance. Explain in detail about Huckel's rule.
15 Explain about the Hinsberg method of separation of amines.
16 Write about the electrophilic substitution reactions of naphthalene.
17 Explain the mechanism involved in nitration of benzene.
18 What are the limitations of Baeyer's strain theory and explain the theory of strain-less rings?
19 Write the decreasing order of aromaticity among anthracene, benzene and naphthalene and explain the reason for the same.
20 Explain about hydrolysis & drying of fats and oils.
21 Write the synthetic applications of aryl diazonium salts.
22 Define saponification value. Explain its determination.

Code No. D-8240/PCI

FACULTY OF PHARMACY

B. Pharmacy III Semester (PCI) (Main) Examination, May 2022

Subject: Pharmaceutical Engineering

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

PART - A

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

1 What is Bernoulli's theorem and write its application?
2 Write the objectives of size reduction and mention its applications.
3 Classify mechanisms of size separation.
4 Draw the diagram of steam jacketed kettle.
5 Write the significance of drying rate curve.
6 Classify evaporation equipments.
7 Mention the challenges in solid mixing.
8 What are applications of bag filter?
9 List the factors affecting centrifugation.
10 Classify material for plant construction.

PART - B

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

11 Explain the factors affecting drying. Write construction working, uses, merits and demerits of fluidized bed dryer.

12 Write principles, methodology and applications of fractional distillation.

13 Write the theories of corrosion. Explain the factors affecting corrosion.

PART - C

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

14 Write construction and working of differential manometer.
15 Write principle and procedure of determining particle size by sieve shaker.
16 Explain the different laws governing size reduction.
17 Differentiate between forced circulation evaporator and climbing film evaporator.
18 Write the working principle, construction of double cone blender.
19 Explain the concept of semisolid mixing with help of diagram.
20 Write working principle, construction of double cone blender.
21 Write the construction and working of super centrifuge.
22 Describe plastic and rubber as materials for plant construction along with their advantages and disadvantages.

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Code No. D-8239/PCI

FACULTY OF PHARMACY

B. Pharmacy III Semester (PCI) (Main) Examination, May 2022

Subject: Pharmaceutical Microbiology

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

PART - A

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

1 Write the Koch's postulates.
2 Write a note on Indole production test.
3 Write about fractional sterilization.
4 What are the factors affecting disinfectants?
5 What is antiseptic and fungi static?
6 What is HEPA?
7 What is aseptic area?
8 What are the uses of antibiotics and Vitamins?
9 What is bacteriostatic and fungi static?
10 Write a notes autoclave.

PART - B

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

11 Explain general procedures of animal cell culture.

12 Explain chemical and gaseous methods of Sterilization.

13 Explain principle and procedure involved in microbiological assay of antibiotics.

PART - C

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

14 Explain the methods of isolation of pure cultures.
15 Explain simple staining technique.
16 Explain about cultivation of anaerobic bacteria.
17 Write about nutritional requirements of bacteria.
18 Write the differences between prokaryotes and Eukaryotes.
19 Explain about gelatin hydrolysis test.
20 Explain about gaseous sterilization.
21 Write types of spoilage.
22 Explain reproduction in animal viruses.

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Code No. D-8238/PCI

FACULTY OF PHARMACY

B. Pharmacy III - Semester (PCI) (Main) Examination, May 2022

Subject: Physical Pharmaceutics – I

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

PART – A

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

1. Define solubility
2. What is phase rule?
3. Write a note on eutectic mixtures
4. What is dipole moment? Write its applications
5. Define interfacial tension
6. Write a note on solubilization
7. What is complexation? Write its applications
8. Write a note on Sorenson's pH scale
9. What is isotonicity?
10. Define protein binding

PART – B

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

11. Explain briefly on the following with applications
    (a) Refractive index (b) Optical rotation (c) Dissociation constant.
12. (a) Write a note on surfactants and its applications.
    (b) Write the methods for determination of surface tension.
13. (a) Write the applications of buffers in pharmaceutical and biological systems.
    (b) Write a note on buffered isotonic solutions.

PART – C

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

14. Write briefly on factors influencing on solubility of drugs.
15. Write a note on solubility of liquids in liquids and gases in liquids.
16. What is Polymorphism? Write about polymorphism and its importance.
17. Write a note on (a) Changes in states of matter (b) Liquid crystals.
18. Write a note on HLB Scale and its applications.
19. Write about the crystalline structure of complexes.
20. Write a note on thermodynamic treatment of stability constants.
21. Write a note on measurement of pH using hydrogen electrode.
22. Write a note on buffer equation and buffer capacity.

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Code No: 12323/PCI

FACULTY OF PHARMACY

B. Pharmacy III-Semester (PCI) (Backlog) Examination, September 2021

Subject: Pharmaceutical Organic Chemistry-II

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Seven Questions from Part – A, Any One Questions from Part-B. and Any Five Questions from Part-C

PART – A (7X3 = 21 Marks)

1. Define Huckel's rule with example.
2. Write the limitations of Friedel craft acycation.
3. Explain activating & deactivating group with example.
4. Write the structure & uses of DDT.
5. Write the structure & uses of Resorcinol.
6. Define saponefication value.
7. Write the significance of Iodine value.
8. Write the medicinal uses of Anthracene & Triphenylmethane
9. Explain Puckered ring
10. Explain the effect of electron withdrawing groups in the acidity of benzoic acid.

PART- B (1 X 14 = 14 Marks)

11. a) Explain the Nitration reaction of nenzene.
    b) Write the significance & principle involved in the determination of Acid value.
12. a) Explain the acidity & effect of substituents on the acidity of phenol.
    b) Explain Beyer's strain theory.
13. Write the synthesis & reactions of Naphthalene.

PART - C (5 X 8 = 40 Marks)

14. Explain sulphonation reaction of benzene.
15. Explain the reactions of benzoic acid.
16. Explain hydrogenation reaction of fatty acid.
17. Write the significance and principle involved in the determination of RM value.
18. Explain the reactions of cyclopropane & cyclobutance
19. Write the short note on coulson and Moffitt's modifications.
20. Explain the orientation and reactivity of cholorobenzene of further electrophonic substitution.
21. Write the qualitative test of phenol.
22. Explain the basicity of Amines.

Code No. 12324/PCI

FACULTY OF PHARMACY

B.Pharmacy III Semester (PCI) (Backlog) Examination, September 2021

Subject: Physical Pharmaceutics - I

Time: 2 Hours **Max. Marks: 75**

PART - A

Note: Answer any seven questions. **(7 x 3 = 21 Marks)**

1 What is solubility?
2 State the phase rule.
3 Write a note on changes in the states of matter.
4 What are aerosol systems?
5 What is interfacial tension?
6 Write a note on detergency.
7 Write the classifications of complexes.
8 Write a note on pH scale.
9 What is a buffer? What are its uses? Give examples.
10 Define isotonic solutions.

PART - B

Note: Answer any one question. **(1 x 14 = 14 Marks)**

11 Write a note on following physicochemical properties of drugs
(a) Refractive index (b) Optic rotation (c) Dielectric constant
(d) Dipole moment.

12 (a) Write a note on HLB scale and its applications.
(b) Write the methods for determination of surface tension.

13 Define protein binding. Explain its significance. Explain kinetics of protein binding.

PART - C

Note: Answer any five questions. **(5 x 8 = 40 Marks)**

14 Explain the factors influencing on solubility of drugs.

15 What is Polymorphism? Explain about polymorphism with its importance.

16 What is dissociation constant and how to determine? Write applications of PKa.

17 Explain liquid crystalline state with example.

18 Explain distribution law and its applications.

19 What is complexation? Write the crystalline structure of complexes.

20 Write a note on pharmaceutical buffers with examples.

21 How do you measure pH using hydrogen electrode?

22 Write the applications of complexation in pharmacy.

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Code No: 12326/PCI

FACULTY OF PHARMACY

B.Pharmacy III-Semester (PCI) (Backlog) Examination, September 2021

Subject: Pharmaceutical Engineering

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Seven Questions from Part – A, Any One Questions from Part-B. and Any Five Questions from Part-C PART – A (7X3 = 21 Marks)

1. Mention various energy losses during flow of fluids.
2. Write impact and attrition with examples.
3. Differentiate cyclone separator and air separator.
4. Define radiation and write equation of Stefan Boltzmann's law.
5. Define evaporation and write its applications.
6. Write the principle involved in flash distillation.
7. Define bound and unbound water.
8. Define mixing and write objectives of mixing.
9. List out the factors affecting filtration.
10. Write any two alloys of stainless steel with composition.

PART- B (1 X 14 = 14 Marks)

11. Define size separation. Write the procedure for determination of particle size and its distribution by sieve analysis.
12. Define drying and classify different types of dryers. Write principle, construction, working, applications, advantages and disadvantages of any one dryer.
13. Write the mechanisms of liquid Mixing. Explain in detail about any one mixing equipment.

PART - C (5 X 8 = 40 Marks)

14. Explain the principle, construction, working of venturimeter.
15. Discuss the construction, working and application of fluid energy mill with diagram.
16. Write the construction and working of floating-head two-pass heater.
17. Describe the factors that affect rate of evaporation.
18. Write a note on fractionating columns used in fractional distillation.
19. Explain the construction and working of sigma blade mixer.
20. Discuss the construction and working of rotary drum filter.
21. Describe the theory of centrifugation with applications.
22. Write about merits and demerits of cast iron as a material for plant construction.

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Code No: 12325/PCI

FACULTY OF PHARMACY

B.Pharmacy III-Semester (PCI) (Backlog) Examination, September 2021

Subject: Pharmaceutical Microbiology

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Seven Questions from Part – A, Any One Questions from Part-B. and Any Five Questions from Part-C PART – A (7X3 = 21 Marks)

1. Distinguish between 'phototrophs' and 'chemotrophs' with examples.
2. Write about 'Selective media' and 'Differential media'.
3. Briefly explain the term 'Thermal Death Time'.
4. Write about importance of 'Sterilization indicators'.
5. Write four different factors influencing disinfectant action.
6. What is 'sterility' testing'.
7. What is 'Aseptic room'.
8. Explain the principle for microbiological assay of vitamins.
9. Write any two factors affecting microbial spoilage.
10. Write a note on 'Transformed cell culture'.

PART- B (1 X 14 = 14 Marks)

11. Describe the different techniques used for determination of 'Total' and 'Viable' counts of bacteria.
12. Write the different types of identification of bacteria and explain 'IMviC' tests.
13. Explain in detail about replication of viruses.

PART - C (5 X 8 = 40 Marks)

14. What is a 'Pure culture'? How do you preserve it.
15. Explain the principle and application of 'Electron microscopy'.
16. Write a note on 'Acid-fast staining' and its significance.
17. Write about sterilization by 'filtration'.
18. Differentiate between 'Bacteria' and 'Virus'.
19. Explain 'Rideal – walker coefficient' test
20. What do you mean by clean room. Write short notes on 'HEPA' filters.
21. Discuss the principle and any one method involved in microbiological assay of 'antibiotics'.
22. Write short notes on 'Microbial Contaminants'.

Code No: 12063/PCI

FACULTY OF PHARMACY

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

March 2021

Subject: Pharmaceutical Organic Chemistry-II

Time: 2 Hours **Max. Marks: 75**

Note: Answer Any Seven Questions from Part –A, Any one Question from Part-B. and Any Five Questions from Part-C

PART – A (7 X 3 = 21 Marks)

1. Write the difference between oils & fats.
2. Explain ranciclity of oil.
3. Explain resonance in benzene
4. Write the uses of triphenyle methane.
5. Write the structure & uses of chloramines.
6. Explain o/p and m-directing groups with examples.
7. Explain Reichert – Meissel value.
8. Write the limitation of Friedel – craft reaction.
9. Write the structure of saccharin and BHC.
10. Write the structure & uses of cresols.

PART- B (1 X 14 = 14 Marks)

11. a) Explain the saponitication value. Write the significance & principle involved in it.
    b) Explain the sulphonation reaction of benzene.
12. a) Explain the acidity and effect of substituents on the acidity of benzoic acid.
    b) Explain Baeyer's strain theory.
13. Write the synthesis & reactions of anthracene.

PART - C (5 X 8 = 40 Marks)

14. Explain Nitration reaction of benzene.
15. Explain the reactions of benzoic acid
16. Explain the hydrolysis reaction of fatty acids
17. Write the significance & principle involved in the determination of iodine value
18. Explain the reactions of cyclopropane & Cyclobutance.
19. Write a short note on Sachse Mohr's theory
20. Explain the orientation & reactivity of chlorobenzene on further electrophilie substitution.
21. Write the synthetic applications of aryl diazonium salt.
22. Explain the basicity of amines.

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Code No: 12067/PCI

FACULTY OF PHARMACY

B.Pharmacy III-Semester (PCI) (Main & Backlog) Examination, March 2021

Subject: Pharmaceutical Engineering

Time: 2 Hours **Max. Marks: 75**

Note: Answer Any Seven Questions from Part –A, Any one Question from Part-B. and Any Five Questions from Part-C

PART – A (7 X 3 = 21 Marks)

1 Give the equation for Reynold's number and write its significance.
2 Write the principle involved in hammer mill.
3 Define elutriation method of size separation.
4 Define black body and grey body.
5 Differentiate evaporation and drying.
6 Define distillation and write its applications.
7 Define EMC and FMC.
8 Write the differences between solid and liquid mixing.
9 Define filter aid with examples.
10 Write any two methods to prevent and control corrosion.

PART- B (1X 14 = 14 Marks)

11 Define size reduction. Write principle, construction, working, applications, advantages and disadvantages of ball mill.
12 Explain the theory, equipment and applications of molecular distillation.
13 Classify and enumerate different types of corrosion.

PART- C (5X 8 = 40 Marks)

14 Derive and explain Bernoulli's theorem with applications.
15 Explain the principle, working, and applications any one filter.
16 State Fourier's law and derive an equation for heat transfer through a metal wall.
17 Explain the principle, construction and working of any one evaporator.
18 Write the construction and principle involved in spray drying process with help of diagram.
19 Write the principle and working of planetary mixer with the help of diagram.
20 Explain the theories filtration.
21 Write about the principle, construction, working and advantages of super centrifuge.
22 Discuss the factors to consider in selection of materials for pharmaceutical plant construction.

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Code No: 12065/PCI

FACULTY OF PHARMACY

B. Pharmacy III-Semester (PCI) (Main & Backlog) Examination, March 2021

Subject: Pharmaceutical Microbiology

Time: 2 Hours **Max. Marks: 75**

Note: Answer Any Seven Questions from Part –A, Any one Question from Part-B. And Any Five Questions from Part-C

PART – A (7 X 3 = 21 Marks)

1 Distinguish between 'autotrophs' and 'heterotrophs' with examples.
2 Write about i) Enrichment media ii) Differential media
3 Briefly explain the term – 'decimal reduction time'.
4 Explain about 'Fractional sterilizations'.
5 What are the different sterility tests?
6 Differentiate 'disinfectants' and 'antiseptics'
7 What do you know about 'HEPA'?
8 Give the principle of 'Microbial assay'.
9 How would you prevent, contamination.
10 Write about 'Transformed cell culture'.

PART- B (1 X 14 = 14 Marks)

11 a) Describe the different phases of bacterial growth curve.
b) Explain in detail about the isolation and cultivation of anaerobic bacteria.

12 What is sterilization? Classify different methods of sterilization and describe the construction, principle, procedure, merits, demerits and applications of 'Autoclaving'.

13 Describe the various factors influencing disinfection.

PART - C (5 X 8 = 40 Marks)

14 Describe the different techniques used for isolation of pure cultures.
15 Describe the construction and working of 'phase contrast microscopy'.
16 Differentiate 'Gram positive' and 'Gram -negative' bacteria with suitable examples.
17 Write a note on 'Gaseous sterilization'.
18 Discuss any two groups of disinfectants with their mode of action and applications.
19 Write about 'Chick – martin test'.
20 Write short notes on 'Assessment of new antibiotic'.
21 Write short notes on 'Applications of cell cultures'.
22 Write short notes on factors affecting microbial spoilage of pharmaceutical products.

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Code No: 12064/PCI

FACULTY OF PHARMACY

B.Pharmacy III-Semester (PCI) (Main & Backlog) Examination, March 2021

Subject: Physical Pharmaceutics-I

Time: 2 Hours **Max. Marks: 75**

Note: Answer Any Seven Questions from Part –A, Any one Question from Part-B. And Any Five Questions from Part-C

PART – A (7 X 3 = 21 Marks)

1. Define solubility.
2. What is critical solution temperature?
3. Define amorphous and crystalline matter.
4. What are eutectic mixtures?
5. Define ph scale..
6. What is surface free energy?
7. What is buffer capacity?
8. Define isotonic solutions.
9. What are liquid crystals?
10. What is HLB? Give two examples

PART – B (1 X 14 = 14 Marks)

11. Write a note on quantitative approach to the factors influencing solubility of drugs.
12. Write a note on (i) Refractive index (ii) Dipole movement (iii) Dissociation constant
13. Define complexation Write a note on classification and methods of analysis of complexation.

PART – C (5 X 8 = 40 Marks)

14. Write a note on distribution law, its application and limitation.
15. Define polymorphism. Write its applications.
16. What is HLB? Write a note on surface active agents.
17. Write a note on protein binding.
18. What are buffers? Write the importance of pharmaceutical and biological buffers.
19. What a note on measurement of surface tension.
20. What is the importance of diffusion principles in biological systems?
21. What is critical solution temperature? Write its application.
22. Write a note on adsorption at solid interface.

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