Code No. 6278/PCI

FACULTY OF PHARMACY

B. Pharmacy III- Semester. (PCI) (Backlog) Examination, December 2020

Subject: Pharmaceutical Organic Chemistry - II

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

PART – A

Note: Answer any Seven questions. ***(7 x3=21 Marks)***

1. What is the difference between an oil and a fat?
2. Define the term aromaticity? How is it related to Huckel rule?
3. Write the structure and uses of DDT.
4. Write any two qualitative tests for phenol.
5. Write the signigicance of acid value.
6. Write the structures of Phenanthrene and Triphenyl methane.
7. Explain the limitations of Baeyer's strain theory.
8. Define o/p and m-directing group with examples.
9. Explain resonance structures of benzene.
10. Write the uses of Saccharin and Resorcinol.

PART – B

Note: Answer One question. ***(1 x14=14 Marks)***

11. Give ion detail the mechanism of sulphonation and Friedelcrafts alkylatin.
12. Explain any two methods of preparation and reactions of phenol.
13. Explain principle and significance of Saponification value and Reichert Meissl(RM) value.

PART - C

Note: Answer any Five questions. ***(5x8=40 Marks)***

14. Write any two reactions of cyclopropane and cyclobutane.
15. How will you distinguish between 1^0, 2^0 and 3^0 aromatic amines?
16. Explain acidic nature of aromatic acid. Discuss the effect of electron donating substituents on the acidity of aromatic acid.
17. Explain the prepartions (any 2) and reactions (any 2) of naphthalene.
18. Explain any two reactions of fatty acid.

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19. Explain the deactivating nature of chlorobenzene.
20. Write the synthetic uses of aryl diazonium salts.
21. Explain the reactions of Anthracene.
22. Write the notes on -
    a. Sachse Mohr's theory
    b. Drying of oils.

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Code No. 6280/PCI

FACULTY OF PHARMACY

B. Pharmacy III-Semester (PCI) (Backlog) Examination, December 2020
Subject: Pharmaceutical Engineering

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

PART – A

Note: Answer any Seven questions. ***(7 x3=21 Marks)***

1. List the types of manometers.
2. Write the official standards for powders.
3. State Fourier's law.
4. Write the principle involved in ste4am distillation.
5. What is mixing index.
6. What is drying and its importance in pharmaceuticals.
7. Define filtration.
8. List centrifuges based on mechanism of separation.
9. Classify materials used for plant construction.
10. Explain wet or Electrochemical corrosion.

PART – B

Note: Answer One question. ***(1 x14=14 Marks)***

11. Write about forced circulation evaporator and climbing film evaporator with diagrams.
12. Explain the theories and factors influencing filtratin.
13. Explain the principle, construction and working of Simple distillation.

PART – C

Note: Answer any Five questions. ***(5x8=40 Marks)***

1. Differentiate between Venturimeter and Rotameter.
2. Describe the principle and working of bellmill.
3. Write a note on shell and tube heat exchanger.
4. Explain the principle involved in fractional distillation.
5. Explain the principle and working of Silveson Emulsifier.
6. Write a note on rete of drying & its applications.
7. Write a not on filter media and filter aids.
8. Discuss the factors to be considered in the selection of materials for plant construction.
9. Discuss about any one type of fluid corrosion.

Code No. 6280/PCI

FACULTY OF PHARMACY

B. Pharmacy III-Semester (PCI) (Backlog)Examination, December 2020

Subject: Pharmaceutical Microbiology

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

PART – A

Note: Answer any Seven questions. ***(7 x3=21 Marks)***

1. Explain the bacterial growth curve.
2. Write the difference between Prokaryotes and Eukaryotes cells.
3. What is the difference between disinfectant and antiseptic?
4. Describe Indole test.
5. What is sterility testing? Explain.
6. Explain the factors affecting disinfectant.
7. Describe the classification of fungus.
8. Explain in-vitro test for assessment of new antibiotic.
9. Write note on HEPA.
10. Explain the type of spoilage.

PART – B

Note: Answer One question. ***(1 x14=14 Marks)***

11. Explain the various methods used for cultivation of virus in detail.
12. Describe the various physical methods of sterilization with examples.
13. Discuss the principles, methods and procedure of microbial assay. Explain the assay of antibiotic.

PART - C

Note: Answer any Five questions. ***(5x8=40 Marks)***

14. Explain the various methods of classification of bacteria with examples.
15. Discuss the various methods for counting of bacteria.
16. Explain the type of phase contrast microscopy.
17. Define staining. Describe various staining techniques used in bacterial identification.
18. Describe the evaluation of efficiency of sterilization method.
19. Classify the disinfectant and explain their mode of actions.
20. Explain the various sources of contamination in aseptic area and its prevention methods.
21. Discuss the general procedure for cell culture.
22. Describe the different tests used to assess microbial contamination.

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Code No. 6279/PCI

FACULTY OF PHARMACY

B. Pharmacy III-Sem. (PCI) (Backlog) Examination, December 2020

Subject: Physical Pharmaceutics - I

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

PART – A

Note: Answer any Seven questions. ***(7 x3=21 Marks)***

1. Define super saturated solutions and ideal solutions.
2. Dissolution of drug is faster in granules. Why?
3. Write the applications of Fick's first law of diffusion in pharmacy.
4. State the phase rule.
5. What are super critical fluids?
6. Define dielectric constant. What is snell's law?
7. Differentiate between cohesive forces and adhesive forces.
8. Write the classifications of complexes.
9. Define Isotonic solutions and Hypotonic solutions.
10. How pH is affected by temperature?

PART – B

Note: Answer One question. ***(1 x14=14 Marks)***

11. Describe the measurement of surface tension & write the application of surfactants.
12. State Gibb's phase rule. Explain the phase diagram of phenol water system.
13. Define protein binding. Explain its significance. Explain kinetics of protein binding.

PART - C

Note: Answer any Five questions. ***(5x8=40 Marks)***

14. Define solubility. Explain different factors influencing solubility.
15. Explain Dalton's law of partial pressure.
16. What is buffer capacity? Write vanslyke's equation for buffer capacity and maximum buffer capacity.
17. Write a note on –
    (a) Molar refraction (b) Dipole moment.
18. Write the applications of complexation in pharmacy.
19. Explain about Polymorphism and its importance.
20. Explain liquid crystalline state with example.
21. How do you measure pH using Hydrogen electrode?
22. Write about pharmaceutical buffers.

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Code No. 6052/PCI

FACULTY OF PHARMACY

B. Pharmacy III-Semester (PCI) (Main & Backlog) Examination, January 2020

Subject: Physical Pharmaceutics - I

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

Note: Answer all Questions from Part – A, and Two questions from Part – B, and any Seven questions from Part – C.

PART – A (10 X 2 = 20)

1. What is sorensen's pH scale?
2. What is buffer? Write the buffer equation.
3. What are solid dispersions?
4. What is common ion effect? Explain.
5. What is Refractive index?
6. What are ampholytes, Give examples?
7. Write the solubility of drug as part of solvent required for a part of solute as per USP.
8. Define complexation & chelation.
9. Define Detergency with example.
10. Define optical activity and specific rotation.

PART – B (2 x 10 = 20)

11. State and explain the relative lowering of vapour pressure of Roult's law. Explain its limitations.
12. What is Polymorphism? Give 4 examples of drugs exhibiting Polymorphism, Write its significance.
13. Explain in detail methods of adjustment of tonicity.

PART - C (7 x 5 = 35)

14. Write a note on Liquid Crystalls.
15. Write a short note on –
    (a) Noyes-whitney equation (b) Dankwert's Model
16. State distribution law. Discuss the applications.
17. Explain about Protein binding.
18. Define refractive index. Describe snell's law in detail.
19. Describe capillary rise method to determine surface tension of liquid.
20. Define complexation. What are types of complexes? Write about inclusion complex.
21. Enlist various methods of liquefaction gases. Explain any two.
22. Explain the difference between ideal solution and real solution.

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Code No. 6052/PCI

FACULTY OF PHARMACY

B. Pharmacy III-Semester (PCI) (Main & Backlog) Examination, January 2020

Subject: Physical Pharmaceutics - I

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

Note: Answer all Questions from Part – A, and Two questions from Part – B, and any Seven questions from Part – C.

PART – A (10 X 2 = 20)

1. What is sorensen's pH scale?
2. What is buffer? Write the buffer equation.
3. What are solid dispersions?
4. What is common ion effect? Explain.
5. What is Refractive index?
6. What are ampholytes, Give examples?
7. Write the solubility of drug as part of solvent required for a part of solute as per USP.
8. Define complexation & chelation.
9. Define Detergency with example.
10. Define optical activity and specific rotation.

PART – B (2 x 10 = 20)

11. State and explain the relative lowering of vapour pressure of Roult's law. Explain its limitations.
12. What is Polymorphism? Give 4 examples of drugs exhibiting Polymorphism, Write its significance.
13. Explain in detail methods of adjustment of tonicity.

PART - C (7 x 5 = 35)

14. Write a note on Liquid Crystalls.
15. Write a short note on –
    (a) Noyes-whitney equation (b) Dankwert's Model
16. State distribution law. Discuss the applications.
17. Explain about Protein binding.
18. Define refractive index. Describe snell's law in detail.
19. Describe capillary rise method to determine surface tension of liquid.
20. Define complexation. What are types of complexes? Write about inclusion complex.
21. Enlist various methods of liquefaction gases. Explain any two.
22. Explain the difference between ideal solution and real solution.

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Code No. 6051/PCI

FACULTY OF PHARMACY

B. Pharmacy III-Sem. (PCI) (Main & Backlog) Examination, December 2019

Subject: Pharmaceutical Organic Chemistry - II

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

Note: Answer all Questions from Part – A, and Two questions from Part – B, and any Seven questions from Part – C.

PART – A (10 X 2 = 20)

1 Define Huckel's rule.
2 Write the structures of DDT and BHC.
3 Explain activating and deactivating groups with examples.
4 Write the uses of cresols and naphthols.
5 Explain rancidity of oil.
6 Write the structure and uses of anthracene.
7 Define saponification value.
8 Explain the significance of ester value.
9 Explain about puckered ring structure.
10 Explain resonance in benzene.

PART – B (2 x 10 = 20)

11 Explain electrophilic substitution reactions of benzene with any one example.
12 Write the short notes on -
a. RM Value b. Acid value c. Drying of oil.
13 Write the preparation methods of cyclopropane and cyclobutane.

PART - C (7 x 5 = 35)

14 Explain the nitration reaction of aniline with mechanism.
15 Write the note on Baeyer's strain and Sachse Mohr's theories.
16 Write any two preparation methods of Naphthalene.
17 Explain acidic nature of phenols. Discuss the effect of electron withdrawing substituents on the acidity of phenol.
18 Write the synthetic uses of aryl diazonium salts.
19 Explain the principle and signigicance of iodine value.
20 Explain the hydrolysis and hydrogenation reactions of oils.
21 Explain any two reactions of obenzoic acid.
22 Explain the deactivating nature of chlorobenzene.

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Code No. 6054/PCI

FACULTY OF PHARMACY

B. Pharmacy III-Sem. (PCI) (Main & Backlog) Examination, January 2020

Subject: Pharmaceutical Engineering

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

Note: Answer all Questions from Part – A, and Two questions from Part – B, and any Seven questions from Part – C.

PART – A (10 X 2 = 20)

Answer all questions. All questions carry equal marks.

1 What is size reduction and its importance?
2 Write the equation for Reynolds number with units.
3 Define conduction and convection with example.
4 Classify Evaporators.
5 Draw rate of drying curve.
6 Differentiate between solid and liquid mixing.
7 What is distillation and its applications with examples?
8 Define filter aids with examples.
9 Name any two alloys of cast iron with composition and properties.
10 What are the types of corrosion?

PART – B (2 x 10 = 20)

Answer any Two questions. All questions carry equal marks.

11 Write the principle, construction and working of Ball mill with diagram.
12 Write the principle, construction and working of fludized bed dryer with diagram.
13 Describe the different methods for prevention and control of corrosion.

PART - C (7 x 5 = 35)

Answer any Five questions. All questions carry equal marks.

14 Write a note on Bernoulli's theorem and applications.
15 Describe elutriation method of size separation.
16 Describe the factors influencing evaporation.
17 Derive an equation for heat transfer through a cylinder by conduction.
18 Describe the mechanism of drying process.
19 Explain the principle and working of planetary mixer.
20 Compare plate & frame filter press with chamber press.
21 Explain the principle/theory involved in centrifugation.
22 Write a note on Glass as material of construction in Pharmaceutical industry.

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Code No. 6053/PCI

FACULTY OF PHARMACY

B. Pharmacy III - Sem. (PCI) (Main & Backlog) Examination, January 2020

Subject: Pharmaceutical Microbiology

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

Note: Answer all Questions from Part – A, and Two questions from Part – B, and any Seven questions from Part – C.

PART – A (10 X 2 = 20)

1. Explain the structure of bacterial cell wall.
2. What are the advantages of phase contrast microscopy?
3. Classify the bacteria according to the morphology.
4. Explain Gram's staining.
5. What is the difference between disinfectants and antiseptic?
6. Write the difference between virus and bacteria.
7. Explain the clean area classification.
8. Draw bacterial growth curve & explain.
9. What is aseptic area? Mention the classification.
10. Mention preservative used in pharmaceutical products.

PART – B (2 x 10 = 20)

11. Describe the various methods used for isolation, cultivation and preservation of pure culture.
12. Classify the sterilization methods with examples. Discuss various sterilization methods by Heat.
13. Discuss the sterility testing of solid as per I.P. in detail.

PART - C (7 x 5 = 35)

14. Describe the nutritional requirements of microbes.
15. Explain bacterial identification by IMVIC test.
16. Describe the replication of virus.
17. Write detail note on sterility indicators.
18. Discuss the methods for evaluation of disinfectants.
19. Explain principle method and procedure involved in microbiological assay of Vitamin.
20. Write the construction and working of laminar air flow equipment.
21. Describe the application of animal cell culture.
22. Explain various factors affecting the microbial spoilage of pharmaceutical products.

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Code No. 13237 / PCI

FACULTY OF PHARMACY

B. Pharmacy III – Semester (PCI) (Suppl.) Examination, August 2019

Subject : Pharmaceutical Microbiology

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

Note : Answer all questions from Part-A. Any Two questions from Part-B and any Seven questions from Part-C.

PART-A (10 x 2 = 20 Marks)

1 What are protoplasts and spheroplasts?
2 Distinguish between Autotrophs and Heterotrophs.
3 Write about Indole test and its importance.
4 Differentiate between moist heat and dry heat sterilization.
5 What is sterilization and disinfection?
6 Differentiate between virus and bacteria.
7 What is paesturisation?
8 What is an antibiotic and it's applications?
9 Write about the tests used to assess microbial contamination.
10 Add a note on merits and demerits of animal cell culture.

PART-B (2 x 10 = 20 Marks)

11 Describe the different techniques used for determination of viable and total counts of bacteria.

12 Write about the different of sterilization techniques and their applications.

13 Describe the principle and method of antibiotic assay.

PART-C (7 x 5 = 35 Marks)

14 Explain the principle, advantages, disadvantages and applications of Electron microscopy.
15 Describe the different techniques used for preservation of pure cultures.
16 Discuss the physical methods of sterilization.
17 Write a note on gaseous and filtration sterilization.
18 Add a detailed note on phenol coefficient tests.
19 Describe the microbiological assay of Vitamin B_{12}.
20 Explain the methods involved in assay of aminoacids.
21 Explain the various factors that affects the microbial spoilage of pharmaceutical products.
22 Mention the various factors that affects the antimicrobial activity of preservatives.

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Code No. 13238 / PCI

FACULTY OF PHARMACY

B. Pharmacy III – Semester (PCI) (Suppl.) Examination, August 2019

Subject : Pharmaceutical Engineering

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

Note : Answer all questions from Part-A. Any Two questions from Part-B and any Seven questions from Part-C.

PART-A (10 x 2 = 20 Marks)

1 Define black body and grey body.
2 Write equation of Fourier's law and mention the terms in it.
3 Write the equation of Reynolds number. What are its applications?
4 Mention the factors influencing evaporation.
5 Differentiate between evaporation and drying.
6 What is size reduction and its importance?
7 Classify drying equipment.
8 What is distillation and its uses?
9 Mention different types of glass.
10 Differentiate conveyor and pump.

PART-B (2 x 10 = 20 Marks)

11 a) Explain the factors affecting mixing.
b) Write construction working, uses, merits and demerits of ball will.

12 Write the construction, working, uses merits and demerits of frame and plate filter press with washing facility.

13 Define corrosion. Explain the factors influencing corrosion along with methods to prevent corrosion.

PART-C (7 x 5 = 35 Marks)

14 Explain various energy losses during flow of fluids along with equations.
15 Explain about rate of drying.
16 Explain the laws governing size reduction.
17 Write the construction and working of hammer mill with help of diagram.
18 Derive the equation for rate of heat transfer through a plain wall.
19 Describe construction and working of double pipe heat exchanger.
20 Explain the construction, working, principle of conveyor.
21 Write construction and working principle of fluid bed dryer.
22 Write construction, working and uses of centrifuge.

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Code No. 13235 / PCI

FACULTY OF PHARMACY

B. Pharmacy III – Semester (PCI) (Suppl.) Examination, July 2019

Subject : Pharmaceutical Organic Chemistry – II

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

Note : Answer all questions from Part-A. Any Two questions from Part-B and any Seven questions from Part-C.

PART-A (10 x 2 = 20 Marks)

1 Explain briefly about Huckel's rule.
2 Define saponification value and give its significance.
3 rite the structure and uses of DDT.
4 Describe the rancidity of fats and oils.
5 Write about Reimer-Tiemann reaction of Phenols.
6 Differentiate cycloalkanes from aromatic hydrocarbons.
7 Write the structure and uses of triphenylmethane.
8 What is the effect of substituents on basicity of aromatic amines?
9 Explain about angle strain.
10 What is hydrolysis of fatty oils?

PART-B (2 x 10 = 20 Marks)

11 Describe the nitratio, sulphonation and halogenation reactions of benzene with mechanisms. 10

12 a) Explain briefly why phenols are more acidic than alcohols and emphasize the effect of substituents on acidity of phenols. 6
b) Write the conformations of cyclohexane and explain their relative stabilities. 4

13 Write the electrophilic substitution reactions of monosubstituted benzenes. 10

PART-C (7 x 5 = 35 Marks)

14 Explain the Friedel crafts alkylation of benzene.
15 Explain about the hydrogenation of fats and oils.
16 Write the structure and uses of naphthalene and its derivatives.
17 Write the preparation of benzoic acid.
18 Explain about theory of strain-less rings.
19 Define acetyl value. Describe its significance and determination.
20 Draw and explain the molecular orbital picture of benzene.
21 Explain the electrophilic substitution reactions of Napthalene.
22 Describe the method of preparation of diazonium salts.

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Code No. 13104 / PCI

FACULTY OF PHARMACY

B. Pharmacy III – Semester (PCI) (Main) Examination, January 2019

Subject : Pharmaceutical Organic Chemistry – II

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

Note : Answer all questions from Part-A. Any Two questions from Part-B and any Seven questions from Part-C.

PART-A (10 x 2 = 20 Marks)

1 Explain the concept of resonance with suitable examples.
2 Define acid value and give its significance.
3 What are cycloalkanes? Give their nomenclature.
4 Write the structure and uses of chloramines and naphthol.
5 Give any 2 qualitative tests for phenols.
6 What are polynuclear aromatic hydrocarbons? Give examples.
7 Explain nitration of benzene reaction with structures.
8 Write the structure and uses of diphenylmethane and anthracene.
9 What is an electrophile? Give two examples.
10 What is drying of fats and oils? Give its importance.

PART-B (2 x 10 = 20 Marks)

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

12 a) Explain the acidity of aromatic carboxylic acids with special emphasis on effect of substitution on their acidity.
b) Explain any three reactions of benzoic acid.

13 a) Write about the synthesis and uses of arydiazonium salts. 6
b) Define saponification value. Describe the significance and determination. 4

PART-C (7 x 5 = 35 Marks)

14 What is aromaticity? Explain in detail about Huckel's rule.
15 Explain about Hinsberg method of separation of amines.
16 Write about electrophilic substitution reactions of monosubstituted benzene.
17 Explain the mechanism of Friedel-Craft's alkylation and give a note on its limitations.
18 Explain about Baeyer's angle strain theory with its limitations.
19 List out the reaction of fats and oils. Explain about the hydrolysis of fats and oils.
20 Write the following reactions of phenols .
a) Williamson's synthesis of ethers
b) Reimer-Tiemann reaction
21 Keep the following aromatic hydrocarbons in the decreasing order of aromaticity and justify the same :
Anthracene, benzene and naphthalene.
22 Define iodine value. Describe Wij's method and its significance.

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Code No. 13106 / PCI

FACULTY OF PHARMACY

B. Pharmacy III – Semester (PCI) (Main) Examination, January 2019

Subject : Pharmaceutical Microbiology

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

Note : Answer all questions from Part-A. Any Two questions from Part-B and any Seven questions from Part-C.

PART-A (10 x 2 = 20 Marks)

1 Differentiate Prokaryotes and Eukaryotes.
2 Write the difference between enrichment and differential media.
3 What is Acid-fast staining?
4 What is Pasteurization?
5 Define Disinfection and Disinfectant.
6 Explain the practical application of phenotic compounds.
7 What is aseptic area?
8 Explain the uses of Laminar airflow unit.
9 Describe the changes in the product that occurs due to microbial spoilage.
10 What is an antibiotic? What are its uses?

PART-B (2 x 10 = 20 Marks)

11 With the help of a neat diagram describe the structure of a typical bacterial cell.

12 What are different types of sterilization methods? Explain in detail.

13 Explain how the sterility testing of different pharmaceutical preparations are done.

PART-C (7 x 5 = 35 Marks)

14 Describe the principle and applications of phase-contrast microscopy.
15 Discuss various methods for isolation of pure cultures.
16 Define differential staining with examples. Differentiate between gram-positive and gram-negative bacteria.
17 Discuss any five groups of disinfectants with their mode of action and applications.
18 Discuss about cultivation of viruses.
19 Mention principles of Microbiological assays.
20 Describe briefly the microbiological assay of Penicillin.
21 Enlist the sources and types of microbial contamination.
22 List out the applications of Animal cell culture in pharmaceutical industry and research.

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Code No. 13107 / PCI

FACULTY OF PHARMACY

B. Pharmacy III – Semester (PCI) (Main) Examination, January 2019

Subject : Pharmaceutical Engineering

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

Note : Answer all questions from Part-A. Any Two questions from Part-B and any Seven questions from Part-C.

PART-A (10 x 2 = 20 Marks)

1 Write the equation for determination Reynolds number and expand the terms in it.
2 What is size reduction and it's importance?
3 Mention any two differences between air separator and cyclone separator.
4 Write equation of Stefan Boltzmann's law and mention the terms in it.
5 Differentiate between evaporation and distillation.
6 Define bound and unbound water.
7 Mention the factors influencing filtration.
8 What is filter aid and mention its application?
9 Classify filtration equipment.
10 Write merits and demerits of glass as material.

PART-B (2 x 10 = 20 Marks)

11 Write the principle, construction and working of ball mill and hammer mill.

12 Write the construction, working, uses, merits and demerits of frame and plate filter press without washing facility.

13 Classify the materials for plant construction and mention the composition, merits and demerits of ferrous metals.

PART-C (7 x 5 = 35 Marks)

14 Derive the Bernoulli's theorem and mention its applications.

15 Write the construction and working of venturimeter.

16 Write the construction and working of fluid energy mill with help of diagram.

17 Explain the construction and working of bag filter with help of diagram.

18 Derive the equation for rate of heat transfer through a thick walled cylinder.

19 Mention the construction and working principle of climbing film evaporator.

20 Write construction and working principle of freeze dryer.

21 Write construction, working, uses, merits and demerits of rotary drum filter.

22 Explain the factors influencing selection of plant materials.

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Code No. 13105 / PCI

FACULTY OF PHARMACY

B. Pharmacy III – Semester (PCI) (Main) Examination, February 2019

Subject : Physical Pharmaceutics – I

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

Note : Answer all questions from Part-A. Any Two questions from Part-B and any Seven questions from Part-C.

PART-A (10 x 2 = 20 Marks)

1 Define and explain
   a) CMC b) Contact angle
2 Write about liquid crystalline state and it's applications.
3 Write applications of buffers in pharmacy.
4 Define and explain any two solubility expressions.
5 Give principle of HLB value and it's significance.
6 Define a) Dissociation constant b) Dielectric constant
7 What is a buffer? What are its uses? Give examples.
8 Explain the process of detergency.
9 Differentiate between physical adsorption and chemisorption.
10 Define and explain the uses of surface active agents.

PART-B (2 x 10 = 20 Marks)

11 What is polymorphism? Explain it's applications giving suitable examples.

12 What is buffer capacity? Derive and explain buffer equation.

13 How the binding of drug to proteins can influence their action? Deduce an equation for scat chard plot for drug-protein interaction.

PART-C (7 x 5 = 35 Marks)

14 Discuss ideal and non-ideal solutions by considering the solvation-association phenomena.
15 Define and explain optical rotation and dipole moment. Write their applications.
16 Describe capillary rise method for determination of surface tension.
17 Define complexation with the help of suitable example. Describe the following
   a) Metal complexes b) Occlusion compound.
18 What is buffer capacity of solution containing 0.2M acetic acid and 0.1M sodium acetate.
19 Explain Gibb's adsorption principle and it's applications.
20 Explain distribution law and it's applications.
21 Discuss the effect of pressure and temperature on solubility of gases in liquid.
22 How do you measure pH using hydrogen electrode?

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