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.

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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. 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-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. D8163/PCI

FACULTY OF PHARMACY

B. Pharmacy III Semester (PCI) (BACKLOG) Examination, February 2022

Subject: Pharmaceutical Organic Chemistry-II

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

PART - A

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

1 Describe resonance in benzene.
2 Write the structure and uses of Chloramine.
3 Define and differentiate fats & oils with examples.
4 Write any two methods for the preparation of cycloalkanes.
5 Write any two qualitative tests for phenols.
6 What are puckered rings? Give structural examples.
7 Write the resonance structures and uses of phenanthrene.
8 Describe the drying of fats and oils.
9 Write about Haworth synthesis of naphthalene.
10 Write the structure & uses of cresol.

PART - B

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

11 Describe the following reactions of benzene with their mechanism: Halogenation & Nitration.

12 Explain diazotization reaction. Write the synthetic applications of aryl diazonium salts.

13 Write the definition, significance and determination of following analytical constants: iodine value & saponification value.

PART - C

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

14 Explain the mechanism involved in Friedel-craft's alkylation reaction of benzene with its limitations.
15 Explain about oxidation & hydrogenation of fats and oils.
16 Write the structure and uses of anthracene and its derivatives.
17 Write the preparation and reactions of benzoic acid.
18 Explain Baeyer's angle strain theory along with its limitations.
19 Define acid value. Describe its significance and determination.
20 What are activating & deactivating groups? Explain the theory of orientation in electrophilic substitution reactions of mono substituted benzene.
21 Write the preparation, reactions and uses of diphenylmethane.
22 Explain the acidity of phenols.

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Code No. D8164/PCI

FACULTY OF PHARMACY

B. Pharmacy III Semester (PCI) (BACKLOG) Examination,
February / March 2022

Subject: Physical Pharmaceutics - I

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

PART - A

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

1 Define saturated solution, solubility.
2 Write a note on solubility expressions.
3 What is the difference between crystalline state and amorphous state?
4 What are eutectic mixtures?
5 Write a note on detergency.
6 Define surface tension. Write uses of surfactants.
7 What is complexation?
8 Write the classifications of complexes.
9 Write a note on applications of buffers.
10 Define Isotonic solutions and Hypotonic solutions.

PART - B

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

11 (a) Write a note on quantitative approach to the factors influencing solubility of drugs.
(b) Write a note on Gibbs phase rule.

12 Explain various methods for determination of surface tension.

13 (a) Write a note on Refractive index and dielectric constant.
(b) What are buffers? Write the importance of pharmaceutical and biological buffers.

PART - C

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

14 What is critical solution temperature? Write its applications.
15 Define and explain optical rotation and dipole moment. Write their applications.
16 How to determine dissociation constant and write its applications?
17 Write the applications of complexation in pharmacy.
18 What is protein binding? Write the importance of protein binding.
19 Write about pH scale. Write methods for determination of pH.
20 Write a note on buffers in pharmaceutical and biological systems.
21 Write a note on HLB scale and its applications.
22 What is buffer capacity? Write vanslyke's equation for buffer capacity and maximum buffer capacity.

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Code No. D-8165/PCI

FACULTY OF PHARMACY

B. Pharmacy III Semester (PCI) (BACKLOG) Examination,
February / March 2022

Subject: Pharmaceutical Microbiology

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

PART - A

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

1 What are prokaryotes and Eukaryotes?
2 Write pharmaceutical significance of protozoa.
3 What is Tyndalization?
4 What is sterilization, disinfection and antisepsis?
5 What is aseptic area?
6 Define antiseptic and disinfection.
7 Define pasteurization.
8 What is antibiotic?
9 What is bacteriostatic and bactericidal?
10 Write a note on hot air oven.

PART - B

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

11 Explain in detail about Dark field microscopy.

12 Explain Physical and Radiation methods of Sterilization.

13 Explain sterility testing of solids and liquids.

PART - C

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

14 Explain about preservation of pure cultures.

15 Explain Acid fast staining.

16 Write the applications of Animal cell culture.

17 Explain the reproduction in Bacteriophages.

18 Explain about starch hydrolysis test.

19 Explain about cultivation of aerobic bacteria.

20 Write about moist heat sterilisation.

21 Write about different sources of contamination in aseptic area.

22 Explain viable count method of bacteria.

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Code No. D-8166/PCI

FACULTY OF PHARMACY

B. Pharmacy III Semester (PCI) (Backlog) Examination, February / March 2022

Subject: Pharmaceutical Engineering

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

PART - A

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

1 What Reynolds number ad mention terms in it?
2 Write the objectives of size separation and mention its applications.
3 Classify modes of heat transfer and mention the applications of it.
4 What is elutriation and mention its importance?
5 Draw the diagram of simple distillation unit.
6 Define equilibrium moisture content and mention its significance.
7 Classify mixing equipments.
8 List the factors affecting mixing.
9 Mention the application of centrifugation.
10 Define corrosion and classify it.

PART - B

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

11 Explain the factors affecting size reduction. Write construction working, uses, merits and demerits of fluid energy mill.

12 Explain the factors affecting filtration. Write construction working, uses, merits and demerits of plate and frame filter press with wash facility.

13 What are factors affecting corrosion and explain the prevention of corrosion?

PART - C

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

14 Explain the different energy losses during flow of fluids.
15 Write construction and working of pilot tube.
16 Differentiate between heat exchanger and heat interchanger.
17 What is multiple effect evaporators and write the economy of it?
18 Explain the concept of flash distillation with help of diagram and mention the advantages.
19 Write working principle of vacuum dryer and its merits and demerits in comparison to tray dryer.
20 Write the working principle, construction of ribbon blender.
21 Write the construction and working of semi-continuous centrifuge.
22 Describe nonferrous metals as materials for plant construction.

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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 substituent's 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 electrophilic substitution.
21. Write the qualitative test of phenol.
22. Explain the basicity of Amines.

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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 questions. **(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 it's 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'.

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Code No: 12063/PCI

FACULTY OF PHARMACY

acy III-Semester (PCI) (Main & Backlog) Examination, March 2021

Subject : Pharmaceutical Organic Chemistry-II

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 substituent's 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

acy III-Semester (PCI) (Main & Backlog) Examination, March 2021

Subject : Pharmaceutical Engineering

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

acy III-Semester (PCI) (Main & Backlog) Examination, March 2021

Subject : Pharmaceutical Microbiology

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 'disnfectants' 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 cutture'.

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

ıacy III-Semester (PCI) (Main & Backlog) Examination, March 2021

Subject : Physical Pharmaceutics-I

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) Dissocaiation 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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Code No. 6278/PCI

FACULTY OF PHARMACY

ıacy 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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he 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.

Code No. 6281/PCI

FACULTY OF PHARMACY

ɱacy 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)***

14. Differentiate between Venturimeter and Rotameter.
15. Describe the principle and working of bellmill.
16. Write a note on shell and tube heat exchanger.
17. Explain the principle involved in fractional distillation.
18. Explain the principle and working of Silveson Emulsifier.
19. Write a note on rete of drying & its applications.
20. Write a not on filter media and filter aids.
21. Discuss the factors to be considered in the selection of materials for plant construction.
22. Discuss about any one type of fluid corrosion.

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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.

Code No. 6052/PCI

FACULTY OF PHARMACY

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

acy 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

rmacy 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

nacy 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

nacy 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

rmacy 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 Write 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

ırmacy 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.

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22. Define iodine value. Describe Wij's method and its significance.

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Code No. 13106 / PCI

FACULTY OF PHARMACY

ıarmacy 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

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

ıacy 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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