Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – 23-Mar-2021

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

Pharmaceutical Organic Chemistry - II

Q.P. CODE: 5009

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary
All the questions are compulsory

LONG ESSAYS **2 x 10 = 20 Marks**

1. Explain the mechanism of halogenations of benzene. Halogens are deactivating group but ortho and para director. Give reasons

   OR

   Enlist the analytical constants of oils and fats. Discuss in detail about acid value and iodine value and give their significance

2. What are aromatic amines? Explain the reactions of aromatic amines. Discus the effect of substituents on basicity of aromatic amines

SHORT ESSAYS **7 x 5 = 35 Marks**

3. Define friedelcraft's alkylation. Explain the reaction and mechanism

   OR

   Give any four chemical reactions of benzoic acid

4. Explain significance and reactions of hydrolysis and hydrogenation of oils and fats

   OR

   Outline the synthesis of Anthracene by Haworth method

5. Explain Sache-Mohr theory and molecular orbital concept of cycloalkanes
6. Define and classify polynuclear hydrocarbons. Give any two synthesis of naphthalene
7. Explain the reaction and mechanism of sulphonation of benzene
8. Describe any one method to determine Reichert-Meissl value with its significance
9. Give any four chemical reactions of cyclobutane

SHORT ANSWERS **10 x 2 = 20 Marks**

10. Write the structure and uses of BHC and chloramine
11. Give any one method of synthesis of Phenanthrene
12. Write a note on drying of oils
13. Give the composition of fats and oils
14. How do you calculate the angle in cyclopropane?
15. What are fatty acids? Give an example of unsaturated fatty acids
16. Give the structure and uses of o-cresol and resorcinol
17. Give the qualitative test of phenol
18. Define cycloalkane and give examples
19. Define deactivating group? Give examples

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – 25-Mar-2021

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

Physical Pharmaceutics - I

Q.P. CODE: 5010

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary
All the questions are compulsory

LONG ESSAYS **2 x 10 = 20 Marks**

1. Explain the various factors influencing the dissolution of poorly soluble drugs.

   OR

   Discuss dielectric constant and dipole moment with their applications in pharmacy

2. Define Surface tension. Explain the principle involved in determination of surface tension by capillary rise method. Give its limitations.

SHORT ESSAYS **7 x 5 = 35 Marks**

3. Explain various ideal solubility parameters for solubility process.

   OR

   What are eutectic mixtures? Explain with examples.

4. Deduce Freundlich adsorption isotherm and give its graphical representation.

   OR

   Explain the principle involved in pH titration method in complexation.

5. What are buffered isotonic solutions? Explain.
6. Explain the electrical double layer of an interface.
7. Discuss Azeotropic distillation with examples.
8. Explain any one method for the determination of pH.
9. Explain different types of metal ion complex and give examples.

SHORT ANSWERS **10 x 2 = 20 Marks**

10. Write four applications of complexation in pharmacy.
11. Define steady state diffusion and sink condition.
12. Two applications of amphiphiles in pharmacy.
13. Define isotonic solutions and give two examples.
14. Define latent heat.
15. Define Buffers and buffer capacity.
16. What do you mean by polarization?
17. Define and classify complexes.
18. Define protein binding.
19. Give examples for pharmaceutical and biological buffers.

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – 29-Mar-2021

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

Pharmaceutical Microbiology

Q.P. CODE: 5011

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary
All the questions are compulsory

LONG ESSAYS **2 x 10 = 20 Marks**

1. What is a virus? Explain the morphology and replication of virus.
   OR
   Enumerate the various methods involved in identification of bacteria.
2. Write the principle and procedure to carry out sterility testing of aqueous solutions and suspensions.

SHORT ESSAYS **7 x 5 = 35 Marks**

3. Write the difference between prokaryotes and eukaryotes.
   OR
   What is Phenol coefficient test?
4. Classify bacteria based on nutritional requirements.
   OR
   What are the factors affecting microbial spoilage of pharmaceutical products?
5. Write a note on Bacteriophage replication.
6. Mention the ideal characteristics of disinfectants.
7. Enlist the types of staining. What is negative staining?
8. Explain the cultivation of anaerobic bacteria.
9. What are the nutritional requirements for animal cell culture?

SHORT ANSWERS **10 x 2 = 20 Marks**

10. What is Enriched media?
11. What is normal flora?
12. Give the applications of animal cell culture in pharmacy.
13. Classify clean area.
14. What do you mean by primary culture?
15. What are sterilization indicators?
16. Give two examples of gram +ve and gram –ve bacteria.
17. What is thermal death time?
18. Differentiate between bacteria and fungi.
19. What is synchronous growth?

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – 31-Mar-2021

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

PHARMACEUTICAL ENGINEERING

Q.P. CODE: 5012

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.
All the questions are compulsory

LONG ESSAYS **2 x 10 = 20 Marks**

1. Describe the construction, working, advantages and disadvantages of Hammer mill.

   OR

   Define Distillation. Explain the Principle and working of Steam Distillation.

2. Describe the principle, construction, working, advantages and disadvantages of a Ribbon Blender Mixer with the help of a neat diagram.

SHORT ESSAYS **7 x 5 = 35 Marks**

3. Explain principle and working of simple manometer.

   OR

   Explain principle and working of cyclone separator.

4. Explain the modes of heat flow.

   OR

   Explain the construction and working of Forced circulation evaporator.

5. Describe the construction and working of a Spray dryer.
6. Describe the construction and working of a Meta filter.
7. Explain the construction and working of supercentrifuge.
8. Define and classify types of Corrosion. List four methods of corrosion prevention.
9. Classify the materials of plant construction. Explain the uses of ferrous metals.

SHORT ANSWERS **10 x 2 = 20 Marks**

10. What is Reynolds number? Write its significance.
11. List the various grades of powders official in pharmacopoeia.
12. Define Block body and Grey body.
13. What are the different modes of feed in multiple effect evaporator?
14. What are impellers? Write the use of Silverson Mixer.
15. Recommend a suitable dryer for the drying. a) Pastes b) Granular solids.
16. Distinguish filtration and clarification
17. List two pharmaceutical applications of Glass.
18. List out the different mechanisms of size reduction.
19. Write the uses of Belt conveyor.

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – 01-Dec-2020

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

Pharmaceutical Organic Chemistry - II

Q.P. CODE: 5009

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

I.ONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. a. Define electrophilic substitution reaction? Explain mechanism of halogenation of benzene.
   b. Explain mechanism of friedelcraft's alkylation of benzene with its limitations.
2. Explain the basicity and effect of substituents on basicity of amines. Add a note on aryl diazonium salts.
3. a. Explain principle involved in any one method of determination of saponification value. Give its significance.
   b. Explain Hydrolysis, hydrogenation and rancidity of oils with their importance.

SHORT ESSAYS (Answer any Seven) **7 x 5 = 35 Marks**

4. Explain the aromaticity, orbital picture and resonance structure of benzene.
5. Explain the mechanism of nitration of benzene.
6. Explain the effect of substituents on reactivity and orientation of mono substituted benzene.
7. Explain the effect of substituents on acidity of phenols. Write structure and uses of resorcinol and cresol.
8. Explain any one method to determine iodine value with its significance.
9. Outline any two synthesis and reactions of naphthalene.
10. Write any two synthesis and reaction of anthracene.
11. Write a note on stability of cycloalkanes.
12. Explain the Sache Mohr's theory of stainless rings.

SHORT ANSWERS (Answer All) **10 x 2 = 20 Marks**

13. Define Huckle's rule.
14. Outline sulphonation of benzene.
15. Write the qualitative tests for phenols.
16. Define drying of oils. Give its significance.
17. Define Reichert Meissl value. Give its significance.
18. Define acid value. Give its significance.
19. Write structure and Medicinal uses of triphenyl methane.
20. Write structure and uses of DDT.
21. Outline one method of preparation of cycloalkanes.
22. Define polynuclear hydrocarbons and cycloalkanes.

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – 04-Dec-2020

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

Physical Pharmaceutics - I

Q.P. CODE: 5010

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. State and explain Nernst Distribution law along with its limitations. Give its applications.
2. Write a note on Sorensen's pH scale. Discuss the methods used for determination of pH.
3. Define surface tension? Discuss the principle involved in capillary rise method.

SHORT ESSAYS (Answer any Seven) **7 x 5 = 35 Marks**

4. Discuss diffusion principles involved in biological systems.
5. Discuss the factors affecting the solubility of gases in liquid.
6. Define optical rotation. Discuss in detail working of polarimeter.
7. Explain the phenomena of wetting and detergency.
8. Define HLB? Explain different methods of determine HLB of a surfactant.
9. Explain the various application of complexation in pharmacy with examples.
10. Explain pH titration method of analysis of complexes.
11. Define dielectric constant and dipole movement. Write its applications.
12. What are buffer solutions? Derive a buffer equation for a weak acid and its salt.

SHORT ANSWERS (Answer All) **10 x 2 = 20 Marks**

13. Define Raoult's law.
14. Define solubility and dissolution.
15. What are liquid crystals?
16. Give BET equation and its significance.
17. Give the applications of Beta cyclodextrin complexes.
18. Importance of protein binding and drug action.
19. What are Clathrates? Give example.
20. Give any four examples of pharmaceutical buffers.
21. Define spreading coefficient. Write one application.
22. What are Hypertonic solutions? Give examples.

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – 07-Dec-2020

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

Pharmaceutical Microbiology

Q.P. CODE: 5011

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. Define and classify culture media. Mention salient feature of each media along with an example.
2. Explain the principle, procedure, applications and demerits of sterilization using autoclave.
3. Classify disinfectants. Write the mechanism of action and uses of phenolic disinfectants.

SHORT ESSAYS (Answer any Seven) **7 x 5 = 35 Marks**

4. Outline working principle of TEM and SEM.
5. Differentiate between gram positive and Gram negative cell wall.
6. Mention indicators used for various sterilization methods.
7. Explain MR-VP tests used for identification of bacteria.
8. Describe the steps involved in replication of virus.
9. Describe the construction and working of laminar air flow.
10. Write briefly on different methods used for microbiological assay of antibiotics.
11. Explain the different sources and types of microbial contamination of pharmaceuticals.
12. Differentiate between primary and established cell culture.

SHORT ANSWERS (Answer All) **10 x 2 = 20 Marks**

13. State Koch's postulates.
14. What is lag phase of bacterial growth?
15. Classify physical method of sterilization.
16. Mention pharmaceutical uses of fungi.
17. Mention the factors affecting disinfectant activity.
18. Write the significance of positive control in sterility testing.
19. What is direct inoculation method of sterility testing?
20. What are Rodac plates?
21. What are visible changes of microbial contaminations in pharmaceuticals?
22. Mention any four major requirements for cell culture laboratory.

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – 09-Dec-2020

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

PHARMACEUTICAL ENGINEERING

Q.P. CODE: 5012

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. Derive Bernoulli's equation stating the assumptions. List the applications of Bernoulli's theorem.
2. State Fourier's law. Derive an equation for heat transfer by conduction through a metal wall. Enumerate the applications of Fourier's law.
3. Discuss the principle, construction, working, advantages and disadvantages of spray dryer.

SHORT ESSAYS (Answer any Seven) **7 x 5 = 35 Marks**

4. Explain with the help of a diagram the construction and working of a ball mill.
5. Explain the working of a cyclone separator and its usefulness.
6. Explain the construction and working of climbing film evaporator.
7. Explain the principle and procedure of molecular distillation. What are its applications?
8. List the reasons for vortex. What are the drawbacks of vortex? Suggest solutions for the problems of vortex formation.
9. Describe the construction and working of leaf filter.
10. Discuss construction and working of a perforated basket centrifuges.
11. Name five important classes of plastics. Mention their applications in pharmaceutical industry.
12. Define corrosion. Explain its causes. Classify corrosion.

SHORT ANSWERS (Answer All) **10 x 2 = 20 Marks**

13. List various grades of powders official in pharmacopoeia.
14. What is the difference between sedimentation and elutriation?
15. State Raoult's law.
16. Enumerate the factors affecting rate of evaporation.
17. List two uses of the sigma blade blender.
18. Define bound water and free moisture content.
19. List the applications of basket centrifuges.
20. State the mechanism of filter aids.
21. List two objectives of conveying of solids.
22. Explain how oxide films are formed. State its advantage.

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – 02-Jan-2020

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

Pharmaceutical Organic Chemistry - II
Q.P. CODE: 5009

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. What is Electrophilic aromatic substitution reaction? Discuss the mechanism of nitration and Friedelcraft's alkylation.
2. What are Aromatic amines? Explain diazotization reaction with its mechanism. Add a note on basicity of amines.
3. Define fats and oils. Explain drying, semidrying and non-drying oils with examples. Define and explain the principle involved in the Iodine value (any one method).

SHORT ESSAYS (Answer any Seven) **7 x 5 = 35 Marks**

4. Halogens are deactivating group but ortho and para director. Give reasons.
5. Discuss the mechanism of Halogenation and Sulphonation of benzene.
6. What are phenols? Discuss the acidity of phenols.
7. Give any three chemical reactions of benzoic acid.
8. Describe any one method of determine Saponification value with its significance.
9. Write any two synthesis and reactions of Naphthalene.
10. Discuss the Bayer's strain theory with limitations.
11. Give any four methods of synthesis of cycloalkanes.
12. Write any two synthesis and reactions of Anthracene.

SHORT ANSWERS (Answer All) **10 x 2 = 20 Marks**

13. What is Huckel's rule? Write its importance.
14. Write the structure and uses of DDT and BHC.
15. Give the structure and uses of Resorcinol and Naphthols.
16. Define rancidity. Give its significance.
17. Define ~~iodine~~ Acid value. Give its significance.
18. What is friedelcraft's acylation?
19. Write the structure and medicinal uses of Diphenylmethane.
20. Give reactions of Cyclobutane.
21. What is a Coulson and Moffitt's modification?
22. Give the compositions of fats and oils.

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – 04-Jan-2020

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

Physical Pharmaceutics - I

Q.P. CODE: 5010

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. Explain in detail factors influencing solubility of drugs.
2. Define Refractive Index. Discuss in detail working of Abbe's refractometer.
3. Define surface tension. Explain in detail measurement of surface tension by capillary rise method.

SHORT ESSAYS (Answer any Seven) **7 x 5 = 35 Marks**

4. Explain real solution with examples.
5. Define dielectric constant. Write a note on its application in pharmacy.
6. Describe the Griffin's HLB scale.
7. Describe the solubilisation process.
8. Write a note on complexation.
9. Describe pH titration method for analysis of complexes.
10. Describe in detail electrometric determination of pH.
11. Write a note on Buffer capacity.
12. Write a note on critical solution temperature and its applications.

SHORT ANSWERS (Answer All) **10 x 2 = 20 Marks**

13. Write the solubility expressions for the solubility of solids in liquids.
14. What do you mean by glassy states?
15. Write any two limitations of Freundlich adsorption isotherm.
16. What are real and ideal solutions?
17. What are chelates?
18. Write a note on inclusion complexes.
19. Define the term isotonicity with examples.
20. Write any two applications of buffered isotonic solutions in pharmacy.
21. What is Henderson Hasselbalch equation? Give its applications in pharmacy.
22. Mention the applications of optical rotation in pharmacy.

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – 06-Jan-2020

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

Pharmaceutical Microbiology

Q.P. CODE: 5011

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. With the help of neat labelled diagram. Explain the principle, construction, working and application of Hot Air oven.
2. Draw a neat diagram of virus cell and explain stages of replication.
3. Explain different methods of evaluations of Disinfectants.

SHORT ESSAYS (Answer any Seven) **7 x 5 = 35 Marks**

4. Explain the principle and procedure involved in MR-VP test.
5. Discuss sterilization by radiation.
6. Discuss the different methods of Microbial assay of Antibiotics.
7. Explain the different methods of maintenance of laboratory culture.
8. Write the principle and procedure of Acid-Fast staining.
9. Explain design and working of Laminar air flow equipment.
10. Discuss types of microbial spoilage.
11. Write the principle of sterility testing.
12. Discuss on basic requirements to establish cell culture laboratory.

SHORT ANSWERS (Answer All) **10 x 2 = 20 Marks**

13. Difference between gram positive and gram negative cell wall.
14. Holder method of Pasteurization.
15. Biological indicator.
16. Sterility test for powders.
17. Fungi.
18. Viable count.
19. D value.
20. Application of animal cell culture.
21. Sterilization of surgical dressings.
22. Classify bacteria based on their temperature requirements with examples.

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – 21-Jan-2020

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

PHARMACEUTICAL ENGINEERING

Q.P. CODE: 5012

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. Describe construction, working, advantages, and disadvantages of fluid energy mill.
2. Derive an equation for heat transmission through a metal wall form Fourier's law. Write the applications of thermal conductivities.
3. Explain the theory of drying giving more emphasis on rate of drying.

SHORT ESSAYS (Answer any Seven) **7 x 5 = 35 Marks**

4. Explain principle and working of simple rotameter.
5. Explain construction and working of an equipment used for size analysis of powders.
6. Describe the construction and working of forced circulation evaporator.
7. Explain the principle of flash distillation with the help of suitable apparatus.
8. Describe the construction and working of planetary mixer. Write its uses.
9. Describe the construction and working of meta filter.
10. Describe the construction and working perforated basket centrifuge.
11. Describe plastic as a material of plant construction.
12. Explain the theories of corrosion.

SHORT ANSWERS (Answer All) **10 x 2 = 20 Marks**

13. Write the principle involved in pitot tube.
14. List the equipment used for size separation of powder particle using air as a medium.
15. In what way evaporation is different from drying.
16. Write the uses of Fluidised Bed Dryer?
17. What are the advantages of vacuum dryer over drum dryer?
18. Write the differences between solid-solid and liquid-liquid mixing.
19. What happens to the rate of filtration when filter aids are used in more than required concentration?
20. Write an equation for centrifugal effect. Explain the terms.
21. List two advantages and two disadvantages of glass as material of construction.
22. Name some conveyors used in pharma industry.

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – MAY-2019

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

Pharmaceutical Organic Chemistry - II
Q.P. CODE: 5009

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. What is Electrophilic aromatic substitution reaction? Discuss the mechanism of Halogenation and Friedelcraft's acylation.
2. What are Aromatic acids? Explain the effect of substituent on acidity of aromatic acids. Give the important reactions of benzoic acid.
3. Define fats and oils. Give any two reactions of fatty acids. Define and explain the principle and involved in the Saponification value (any one method).

SHORT ESSAYS (Answer any Seven) **7 x 5 = 35 Marks**

4. Define activating and deactivating groups with examples. Discuss the mechanism of Sulphonation of benzene.
5. Discuss the mechanism of Nitration and Friedelcraft's alkylation of benzene.
6. Explain the basicity and effect of substituents on basicity of amines.
7. Give the effect of substituents on acidity of phenols.
8. Describe any one method to determine iodine value with its significance.
9. Write any two synthesis and reactions of Phenanthrene.
10. Define angle strain. Discuss why higher cycloalkanes are more stable than lower members?
11. Explain the evidence for derivation structure of benzene.
12. Write any two synthesis and reactions of Naphthalene.

SHORT ANSWERS (Answer All) **10 x 2 = 20 Marks**

13. Give a note on hydrogenation of fats and oils.
14. Write the structure and used of Saccharin and Chloramine.
15. Give addition reactions of Cyclopropane.
16. Define acid value. Give its significance.
17. Define Acetyl value. Give its significance.
18. Give structure and uses of one medicinally important Phenanthrene derivatives.
19. Write the structure and medicinal uses of Triphenylmethane.
20. Give structure and uses of cresols and resorcinol.
21. What is Baeyer's strain theory?
22. Write the difference between oils and fats.

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – JUNE-2019

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

Physical Pharmaceutics - I

Q.P. CODE: 5010

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. State and explain Distribution law. Mention its limitations and applications.
2. Define Refractive Index. Discuss in detail working of Abbe's refractometer.
3. Define interfacial tension. Explain in detail any one method for the determination of the interfacial tension.

SHORT ESSAYS (Answer any Seven) **7 x 5 = 35 Marks**

4. Explain ideal solution with examples.
5. Define dissociation constant. Write a note on its application in pharmacy.
6. Describe various methods for the determination of HLB value.
7. Write a note on surface free energy.
8. Classify organic molecular complexes with examples.
9. Describe any one method for analysis of complexes.
10. Describe in detail electrometric determination of pH.
11. Write a note on Henderson Hasselbalch equation.
12. Write a note on solubility of gases in liquids.

SHORT ANSWERS (Answer All) **10 x 2 = 20 Marks**

13. State Raoult's law.
14. Mention the applications of dipole moment in Pharmacy.
15. Write any two limitations of Langmuir adsorption isotherm.
16. Mention the applications of complexation in pharmacy.
17. What are chelates?
18. What are sandwich complexes?
19. What is pH Sorensen's scale?
20. What is buffer capacity?
21. Mention the applications of buffers in pharmacy.
22. What is polymorphism? Give any two examples.

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – JUNE-2019

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

Pharmaceutical Microbiology

Q.P. CODE: 5011

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. What is pure culture? Write in detail about isolation of pure culture. (2+8)
2. Explain the principle, procedure and applications of any one thermal method of sterilization. (3+4+3)
3. Explain different methods for evaluation of bacteriostatic disinfectant.

SHORT ESSAYS (Answer any Seven) **7 x 5 = 35 Marks**

4. Give the principle and main characteristic of phase contrast microscopy.
5. Describe bacterial growth curve.
6. Write the procedure, merits and demerits of membrane filtration.
7. Write principle and procedure of Gram staining.
8. Describe steps involved in replication of virus.
9. What are the main sources of contamination of an aseptic room? How will you prevent it?
10. Explain principles involved in microbiological assay of streptomycin.
11. How will you detect microbial contamination in pharmaceuticals?
12. Write briefly on general requirements of cell culture laboratory.

SHORT ANSWERS (Answer All) **10 x 2 = 20 Marks**

13. Write contributions of Robert Koch.
14. What is enriched media? Give example.
15. Write applications of uv radiations.
16. What is mycelium?
17. Write the ideal properties of disinfectant.
18. What is direct inoculation method of sterility testing?
19. What is sterility testing?
20. How will you validate HEPA filter?
21. List out different types of microbial contaminants in pharmaceuticals.
22. What is secondary cell culture?

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – JUNE-2019

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

Pharmaceutical Engineering

Q.P. CODE: 5012

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. Derive Bernoulli's equation stating the assumptions.
2. How does film evaporator function? Elaborate the answer with a neat ketch of climbing film evaporator. List its merits and demerits.
3. Explain construction and operational details of freeze dryer. Describe its applications in pharmacy.

SHORT ESSAYS (Answer any Seven) **7 x 5 = 35 Marks**

4. Explain construction and working of a hammer mill with a neat diagram.
5. Explain various grades of powers official pharmacopoeia.
6. Explain construction and working of shell and tube heat exchanger.
7. Explain the principle of steam distillation. Write its applications.
8. Describe construction and working of the sigma blade mixer.
9. Explain the factors influencing filtration.
10. Describe construction and working of the Supercentrifuge.
11. Describe steel as a material of plant construction.
12. Explain measures to check the problems of corrosion.

SHORT ANSWERS (Answer All) **10 x 2 = 20 Marks**

13. List merits and demerits of sieve shaker.
14. Write Rittinger's equation and explain the terms.
15. State and explain Stefan Boltzmann's law of heat of radiation.
16. Explain the principle of flash distillation.
17. Give the graphical representation of rate of drying curve mentioning different stages of drying.
18. What is meant by dead spot in the mixing equipment? How can it be prevented?
19. Define filters aid and filter media giving one example for each.
20. Under what conditions a centrifuge can give higher centrifugal effect?
21. Give two advantages and disadvantages of plastic as material of construction.
22. Write any two equipments used in the pharma industry for solid material handling.

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – JAN-2019

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

Pharmaceutical Organic Chemistry - II
Q.P. CODE: 5009

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. What is electrophilic aromatic substitution reaction? Discuss the mechanism of nitration and halogenation of benzene.
2. What are aromatic acids? Give any three chemical reactions of benzoic acid. Add a note on acidity of aromatic acids.
3. Explain drying, semidrying and non-drying oils with examples. Define and explain the principle involved in the determination of Saponification value (Any one method).

SHORT ESSAYS (Answer any Seven) **7 x 5 = 35 Marks**

4. Define activating and deactivating groups with examples. Discuss the mechanism of sulphonation of benzene.
5. Explain the aromaticity, orbital picture and resonance structure of benzene.
6. What are phenols? Discuss the acidity of phenols.
7. Write any two synthesis and reactions of Anthracene.
8. What are aromatic amines? Explain the basicity aromatic amines.
9. Describe any one method to determine iodine value with its significance.
10. Write the any two synthesis and reactions of phenanthrene.
11. Define angle strain. Discuss why higher cycloalkanes are more stable than lower members.
12. Give any four methods of synthesis of cycloalkanes.

SHORT ANSWERS (Answer All) **10 x 2 = 20 Marks**

13. Write the structure and uses of DDT and BHC.
14. Give the synthesis of benzoic acid.
15. Write the significance of hydrogenation of fats and oils.
16. Define rancidity. Give its significance.
17. Give the compositions of fats and oils.
18. Give any one synthesis of naphthalene.
19. Write the structure and medicinal uses of triphenylmethane.
20. Give the structure and uses of one medicinally important phenanthrene derivatives.
21. Give addition reactions of cyclopropane.
22. What is Sache – Mohr's theory? Explain.

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – JAN-2019

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

Physical Pharmaceutics - I

Q.P. CODE: 5010

Your answers should be specific to the questions asked
Draw neat labelled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. Define azeotropic mixtures. With the help of neat diagram explain in detail fractional distillation process.
2. Define optical rotation. Discuss in detail working of polarimeter.
3. Define interfacial tension. Explain in detail the working of stalagmometer. Write its applications.

SHORT ESSAYS (Answer any Seven) **7 x 5 = 35 Marks**

4. Discuss in detail electrometric determination of pH.
5. Explain real solution with examples.
6. Discuss in detail surface free energy.
7. Define complex. Classify with example.
8. Explain in detail diffusion principles in biological systems.
9. Write the applications of inclusion complexes with examples.
10. Define dielectric constant. Write a note on its application in Pharmacy.
11. What are paratonic solutions? What are the effects of injecting paratonic solutions?
12. Explain Griffins scale in detail.

SHORT ANSWERS (Answer All) **10 x 2 = 20 Marks**

13. Write any two limitations of Freundlich adsorption isotherm.
14. What are channel type complex? Give example.
15. Define the term isotonicity with an example.
16. What do you mean by glassy states?
17. Explain buffer equation.
18. Write the solubility expressions for the solubility of solids in liquids.
19. What are sandwich complexes?
20. What are aerosols?
21. Write any two applications of buffers in pharmacy.
22. Define term ligand with examples.

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – JAN 2019

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

Pharmaceutical Microbiology

Q.P. CODE: 5011

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. What is pure culture? Enlist methods for isolation of pure culture. Describe any two industrially important techniques of preserving bacteria. (2+3+5)
2. Explain the principle, procedure and applications of sterilization using hot air oven. (3+5+2)
3. Explain different factors affecting disinfection.

SHORT ESSAYS (Answer any Seven) **7 x 5 = 35 Marks**

4. Outline working of TEM and SEM
5. Define and classify culture media with examples.
6. Explain the principle involved in autoclaving.
7. Write principle and procedure of acid –fast staining.
8. Write a note on cultivation of virus.
9. What are the main sources of contamination of an aseptic room? How will you prevent it?
10. Explain principles involved in microbiological assay of vitamin B12.
11. Explain the different sources and types of microbial contamination of pharmaceuticals.
12. Write briefly the general procedure for cell culture.

SHORT ANSWERS (Answer All) **10 x 2 = 20 Marks**

13. Write contributions of Edward Jenner.
14. Differentiate between flagella and fimbrae
15. Write bio-indicators for thermal sterilization.
16. Mention pharmaceutical uses of fungi.
17. Define disinfection.
18. Write the significance of positive control in sterility testing.
19. Write the principle of membrane filtration method of sterility testing.
20. What is Grade 100?
21. List out different types of spoilage in pharmaceuticals.
22. What is primary cell culture?

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Semester B. Pharm Degree Examination – JAN - 2019

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

Pharmaceutical Engineering

Q.P. CODE: 5012

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. Explain principle, construction, working, advantages and disadvantages of a noisy mill that works on the principles of impact and attrition.
2. Derive an equation for heat transfer by conduction through a metal wall. Compare and contrast heat transmission following counter current and parallel current feed techniques with relevant equations.
3. Write the theory of solid – solid mixing. Explain the principle, construction and working of planetary mixer.

SHORT ESSAYS (Answer any Seven) **7 x 5 = 35 Marks**

4. Explain construction and working of differential monometer.
5. Explain construction and working of bag filter.
6. Describe the principle and applications of steam distillation.
7. Explain the construction and working of a forced circulation evaporator.
8. Describe the principle with the help of a labeled diagram of fluidised bed dryer.
9. Explain the process of washing of the cake in filter press.
10. List five pharmaceutical applications of centrifugal separations.
11. Explain measures you suggest to check the problems of corrosion.
12. Describe the construction and working of a screw conveyor.

SHORT ANSWERS (Answer All) **10 x 2 = 20 Marks**

13. What is the use of a pitot tube?
14. Differentiate ideal and actual screens
15. Explain the term evaporator capacity.
16. Distinguish evaporation and distillation
17. Classify dryers giving suitable examples.
18. Give suitable dryers used for a) Obtaining free flowing solids and b) Sticky pastes
19. What are the characteristics of filter aids?
20. Explain the principle behind centrifugation.
21. Enumerate the types of glass.
22. List the advantages and disadvantages of plastic as packaging material.

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