



# AUTUMN END SEMESTER EXAMINATION-2024

3<sup>rd</sup> Semester B.Pharm

## PHARMACEUTICAL ORGANIC CHEMISTRY II

BP 301

(For 2023 Admitted Batch)

Time: 3 Hours

Full Marks: 75

*Answer Question No.1 (Part-A) is compulsory,  
any SEVEN from Part-B and any TWO from Part-C.*

*The figures in the margin indicate full marks.*

*All parts of a question should be answered at one place only.*

### PART-A

1. Objective Answer Type Questions (Answer All) [2 × 10]
- (a) What is Friedel craft acylation reaction?
  - (b) Why cyclopropane is most reactive in nature?
  - (c) What is drying of oils?
  - (d) What is Sachse Mohr's theory?
  - (e) Why m-cresol is more acidic than o- & p-cresol?
  - (f) What is mesomeric effects?
  - (g) What is electrophilic substitution reaction?
  - (h) Write the evinces for resonance structure of Benzene.
  - (i) Write the structure and uses of phenanthrene.
  - (j) Differentiated saturated and unsaturated fatty acids.

## PART-B

2. Focused-Short Answer Type Questions-(Answer Any Seven) [5 × 7]
- (a) Write the structure and uses of DDT and Cresol.
  - (b) Write the effect of substituents on reactivity of mono substituted benzene compounds towards electrophilic substitution reaction with suitable examples.
  - (c) Write a note on Fatty acids and write any 2 reactions.
  - (d) Write various reactions of benzene with suitable reaction examples.
  - (e) Write the effect of substituents on acidity of phenol with suitable examples.
  - (f) Write various evidences with reaction examples for establishing the structure of Benzene.
  - (g) Write a detail note on Haeckel theory of Aromaticity.
  - (h) Write a note on Saponification process and saponification vale.
  - (i) Write a note on Bayer's stain theory for stability of cycloalkanes.

## PART-C

### Long Answer Type Questions (Answer Any Two)

- 3. Describe the acidic characters of Phenol. Write various qualitative test for phenol. [10]
- 4. Write the effect of substituents on basicity of Aniline. Write the synthetic uses of aryl diazonium salt. [10]
- 5. Write the structure, uses, synthesis, and reactions of Naphthalene. [10]

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# AUTUMN END SEMESTER EXAMINATION-2024

3<sup>rd</sup> Semester B.Pharm

## PHYSICAL PHARMACEUTICS-I

BP 302

(For 2023 Admitted Batch)

Time: 3 Hours

Full Marks: 75

*Answer Question No.1 (Part-A) is compulsory,  
any SEVEN from Part-B and any TWO from Part-C.*

*The figures in the margin indicate full marks.*

*All parts of a question should be answered at one place only.*

### PART-A

1. Objective Answer Type Questions (Answer All) [2 × 10]

- (a) What are binary solutions?
- (b) Write down the differences between cohesion and adhesion.
- (c) Define mole fraction.
- (d) List the different terms used with solvent specification to denote solubility.
- (e) What is eutectic mixture?
- (f) Mention two applications of protein binding.
- (g) Define parachor.
- (h) What is dipole moment?
- (i) Write down BET equation for adsorption isotherm.
- (j) What is significance of MDI in aerosol-inhalers?

## PART-B

2. Focused-Short Answer Type Questions-(Answer Any Seven) [5 × 7]
- (a) List out different factors influencing solubility of drug with justification.
  - (b) Write a short note on glassy states.
  - (c) Classify complexation and write its applications.
  - (d) What are the factors affecting protein binding of drugs?
  - (e) Discuss briefly about the different gas laws.
  - (f) Write down the mechanism of solute solvent interactions.
  - (g) Classify and describe tonicity.
  - (h) Write a short note on spreading coefficient.
  - (i) Present the applications of dissociation constant.

## PART-C

### Long Answer Type Questions (Answer Any Two)

- 3. Discuss briefly about buffers with suitable examples. [10]
- 4. Derive Raoult's Law and explain its mathematical expression. Highlight its applications in Ideal and real solutions with deviations. [10]
- 5. What are the different methods used for measurement of surface and interfacial tension? Write in detail about two methods. [10]

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**AUTUMN END SEMESTER EXAMINATION-2024**  
**3<sup>rd</sup> Semester B.Pharm**

**PHARMACEUTICAL MICROBIOLOGY**  
**BP 303**

**(For 2023 Admitted Batch)**

Time: 3 Hours

Full Marks: 75

*Answer Question No.1 (Part-A) is compulsory,  
any SEVEN from Part-B and any TWO from Part-C.*

*The figures in the margin indicate full marks.*

*All parts of a question should be answered at one place only.*

**PART-A**

1. Objective Answer Type Questions (Answer All) [2 × 1.0]

- (a) What is HEPA stands for? Write the applications of HEPA filter.
- (b) How tyndallization is different from pasteurization?
- (c) Write two functions of fungal hyphae.
- (d) Name two asexual methods of bacterial reproduction.
- (e) Name the scientist who is known as father of microbiology.
- (f) Define zone of inhibition.
- (g) Name the two bacteria which shows positive reaction towards acid fast staining.
- (h) What is HVAC system? How it is responsible for contamination of aseptic area?
- (i) Give two examples of cationic detergents that are used as preservatives.
- (j) Name the two protein that act as peplomers on virus surface.

## PART-B

2. Focused-Short Answer Type Questions-(Answer Any Seven) [5 × 7]
- (a) Define bacterial growth curve. Write the different phases of bacterial growth curve.
  - (b) Classify the bacterial medium. Write the common ingredients that are used in the preparation of bacterial media.
  - (c) Write the morphologic classification of fungus with suitable examples.
  - (d) Define aseptic area. What are the different source of contamination in an aseptic area?
  - (e) Write a note on viral hem agglutination test.
  - (f) How microbiology is beneficial for society?
  - (g) What is phenol coefficient test? Write the procedure and principle of Chick-Martin test.
  - (h) Explain the different factors that modulate the preservatives mode of action.
  - (i) Write the application of cell culture in pharmaceutical industry.

## PART-C

### Long Answer Type Questions (Answer Any Two)

- 3. Write the characteristics of a good disinfectant. Explain about the different physical methods of sterilization with suitable example. [10]
- 4. How sterility testing is important for pharmaceutical products? Explain about the different sterility testing methods with result discussion. [10]
- 5. Define microbiological assay. Discuss the diffusion method of antibiotic sensitive assays. [10]

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**AUTUMN END SEMESTER EXAMINATION-2024**  
**3<sup>rd</sup> Semester B.Pharm**

**PHARMACEUTICAL ENGINEERING**

**BP 304**

**(For 2023 Admitted Batch)**

Time: 3 Hours

Full Marks: 75

*Answer Question No.1 (Part-A) is compulsory,  
any SEVEN from Part-B and any TWO from Part-C.*

*The figures in the margin indicate full marks.*

*All parts of a question should be answered at one place only.*

**PART-A**

1. Objective Answer Type Questions (Answer All) [2 × 10]

- (a) Define centrifugation. Write any two advantages of centrifugation.
- (b) Write the difference between thermosetting and thermoplastic polymers.
- (c) Write the names of the mechanisms of size reduction.
- (d) Write the names of different types of impellers used for liquid mixing.
- (e) What is a manometer? Classify different types of manometers.
- (f) Define Elutriation.
- (g) What are the disadvantages of vortex formation during mixing?
- (h) Write the difference between filter media and filter aid.
- (i) Define molecular distillation.
- (j) What are conveyors? Classify the conveyors used for material transportation in the pharma industry.

## PART-B

2. Focused-Short Answer Type Questions-(Answer Any Seven) [5 × 7]
- (a) Write the difference between vacuum distillation and flash distillation.
  - (b) What is FMC? Describe the FMC curve with a proper diagram to know the rate of drying process.
  - (c) Write a short note on a non-perforated basket centrifuge.
  - (d) Elaborate the mechanisms of size separation.
  - (e) Write the difference between Evaporation and drying.
  - (f) Classify mechanism of mixing of liquids in detail.
  - (g) Describe Reynolds number and its significance.
  - (h) Define filtration. Describe different theories of filtration briefly.
  - (i) Classify different types of glasses according to I.P. and with respect to chemical composition.

## PART-C

### Long Answer Type Questions (Answer Any Two)

- 3. Classify different types of materials used for pharmaceutical plant construction. Write the details of construction, working, advantages, disadvantages and uses of Pneumatic conveyor. [10]
- 4. What is the difference between Laminar and turbulent flow? Derive Bernouli's theorem and discuss the energy losses during flow of fluids. [10]
- 5. Describe the mechanisms of drying. Elaborate construction, working, advantages, disadvantages and uses of Spray dryer. [10]

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