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AM—30—2024

FACULTY OF SCIENCE AND TECHNOLOGY

B.Pharm. (Second Year) (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2024

PHARMACEUTICAL ORGANIC CHEMISTRY

Paper–II (BP-301T)

(Monday, 16-12-2024) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Draw structure and reactions wherever necessary.

(*iii*) Figures to the right indicate full marks.

1. Answer *all* the following : 10×2=20

(*i*) Explain Huckel's rule of aromaticity.

(*ii*) Give structure and uses of α-naphthol and benzoic acid.

(*iii*) Write synthetic uses of aryl diazonium salt.

(*iv*) Define rancidity. Give its significance.

(*v*) Why oils are liquid and fats are solid at room temperature ?

P.T.O.

(*vi*) Write structure and medicinal uses of triphenylmethane.

(*vii*) Write any *two* reactions of Anthracene.

(*viii*) How do you calculate the angle in cyclobutane ?

(*ix*) Define cycloalkane. Give *two* examples.

(*x*) Draw structure and uses of DDT.

2. Attempt any *two* of the following : 2×10=20

(*i*) What are phenols ? Give any *three* methods of preparation of phenol. Write a note an acidity of phenol.

(*ii*) Explain in detail Haworth synthesis of anthracene. Give any *three* reactions of anthracene.

(*iii*) Write electrophilic aromatic substitution reactions of benzene. Discuss the effect of substituents on reactivity of benzene. Explain mechanism of Friedel-Crafts Alkylation.

3. Attempt any *seven* of the following : 7×5=35

(*i*) Discuss the orientation effect of Hydroxyl and amino group in benzene.

(*ii*) Give *three* synthetic methods and *three* chemical reactions of aromatic acids.

(*iii*) Give structure and uses of :

(*a*) Phenol

(*b*) Naphthylamine

(*c*) O-cresol

(*d*) Naphthalene

(*e*) BHC

(*iv*) Define and classify polynuclear hydrocarbons. Give *four* chemical reactions of naphthalene.

(*v*) Explain significance and reactions of Hydrolysis and Hydrogenation of oils and fats.

(*vi*) Outline any *four* methods of preparation of cycloalkanes.

(*vii*) Write any *two* synthetic and any *two* chemical reactions of phenanthrene.

(*viii*) Describe Bayer's strain theory. What are its limitations ?

(*ix*) Explain why Halogen are deactivating but ortho and para directions towards electrophilic substitutions.

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AM—34—2024

FACULTY OF PHARMACEUTICAL SCIENCES AND TECHNOLOGY

B. Pharm. (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2024

PHYSICAL PHARMACEUTICS

Paper–I

(Wednesday, 18-12-2024) (BP302T) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

1. *All* questions are compulsory : 10×2=20

(*a*) Define solubility.

(*b*) Define critical pressure.

(*c*) Define solvation.

(*d*) Define refractive index.

(*e*) Draw labelled diagram of stalagmometer.

(*f*) Define surface tension with its unit.

(*g*) Define spreading coefficient.

P.T.O.

(*h*) Define complexation.

(*i*) Define buffer equation.

(*j*) Define iso-tonicity.

2. Solve any *two* of the following : 2×10=20

(*a*) Explain in detail ideal solubility parameters.

(*b*) What is optical rotation ? Explain measurement and applications.

(*c*) Explain methods to determine surface and interfacial phenomena.

3. Solve any *seven* of the following : 7×5=35

(*a*) What is surface active agent ? Give its examples.

(*b*) What are complexes ? Give classification of complexes.

(*c*) Describe in detail buffer capacity.

(*d*) Explain detergency and wetting agent.

(*e*) Discuss dipole moment along with applications.

(*f*) Describe dissociation constant with its application.

(*g*) What are eutectic mixtures ?

(*h*) Explain polymorphism with its application in formulation.

(*i*) Explain mechanism of solute-solvent interaction.

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AM—38—2024

FACULTY OF PHARMACEUTICAL SCIENCES

B.Pharm. (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2024

PHARMACEUTICAL MICROBIOLOGY

(BP-303-T)

(Friday, 20-12-2024) Time : 2.00 p.m. to 5.00 p.m.

Time—3 *Hours* *Maximum Marks*– 75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Draw neat labelled diagram wherever necessary.

(*iii*) Figures to the right indicate full marks.

(*iv*) Answer to the point only.

1. Answer the following : 10×2=20

(*a*) Define sterilization.

(*b*) What is DOP test ?

(*c*) Mention application of microbiology.

(*d*) What is staining ? Give its significance.

(*e*) Define bioburden.

(*f*) Define Z-value and D-value.

P.T.O.

(g) Enlist various physical parameters for growth of bacteria.

(h) Mention ideal properties of disinfectants.

(i) Define preservative and bacteriostatic.

(j) What are microbiological assays ?

2. Solve any *two* : 2×10=20

(a) Explain different sources and types of contamination in pharmaceutical products.

(b) Write a detailed note on sterility testing.

(c) Enlist various methods of sterilization with suitable examples. Explain sterilization by radiation.

3. Solve any *seven* : 7×5=35

(a) Write a note on Gram's staining.

(b) Explain lytic and lysogenic cycle of viruses.

(c) Write a note on filtration sterilization.

(d) Give applications of cell culture.

(e) Explain factors affecting the microbial spoilage of pharmaceutical product.

(f) Write about nutritional requirement for growth of bacteria.

(g) Explain different tests used for detection of microbial contamination in aseptic area.

(h) How will you assess new antibiotics by MIC ?

(i) Explain microbial assay for vitamins.

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AM—42—2024

FACULTY OF SCIENCE AND TECHNOLOGY

B. Pharm. (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2024

PHARMACEUTICAL ENGINEERING

(BP-304T)

(Monday, 23-12-2024) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Draw well-labelled diagrams wherever necessary.

1. Answer *all* the following : 10×2=20

(*a*) What is Fourier's law ?

(*b*) Write any *two* applications of Bernoulli's theorem.

(*c*) What is Poiseuille's equation ?

(*d*) Draw a labelled diagram of fluidised bed dryer.

(*e*) What is size separation ? Why is it needed in pharma industry ?

(*f*) Define filter aids. Give examples.

P.T.O.

(g) State the applications of drying.

(h) What is coarse powder and fine powder ?

(i) Define Reynolds' number.

(j) Write the pharmaceutical applications of centrifugal separation.

2. Solve any *two* of the following : 2×10=20

(a) Describe the principle, construction, working, uses, advantages and disadvantages of ball mill.

(b) Discuss in brief about metal as a material.

(c) Discuss principle, construction, working, merits, demerits and uses of tray dryer.

3. Solve any *seven* of the following : 7×5=35

(a) Explain steam distillation process.

(b) Draw a diagram of evaporating pan. Write its construction and working.

(c) Explain principle, construction and working of planetary mixer.

(d) What is Mixing ? Explain construction and working of double cone blender ?.

(e) Draw a labelled diagram of filter leaf. Explain its construction and working.

(f) Explain factors influencing evaporation.

(g) Define corrosion. Explain types of corrosion.

(h) Explain construction, working of cyclone separator.

(i) Write in detail distillation under reduced pressure.