This question paper contains 4 printed pages]

NM—30—2026

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2026

PHARMACEUTICAL ORGANIC CHEMISTRY–II

(BP301T)

(Thursday, 16-4-2026) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks*—75

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

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

(*iii*) Draw structures wherever necessary.

1. Answer the following : 10×2=20

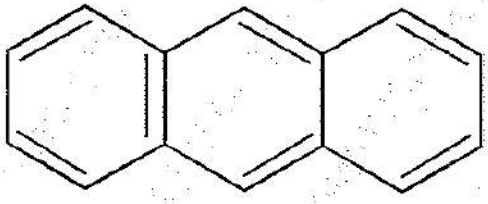
(*a*) Draw the structures of :

(*i*) M-Cresols

(*ii*) Dye.

(*b*) Define saponification value with formula.

(*c*) Identify the following structures are aromatics or non-aromatics :

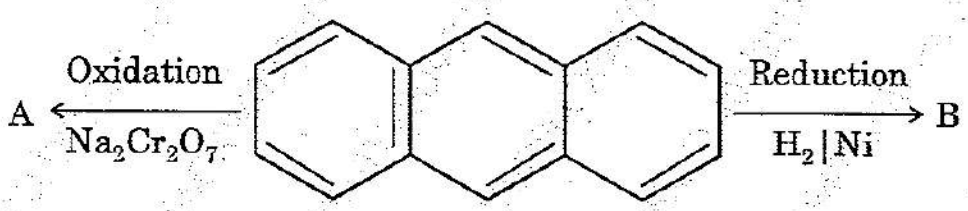
(*i*) 

(*ii*) 

P.T.O.

(*d*) Mention uses of DDT.

(*e*) Complete the following reaction :



(*f*) Differentiate the following groups are Ortho-Para or Meta Directing :

—R, —COOH, —CHO, —OH, —OR, —CN

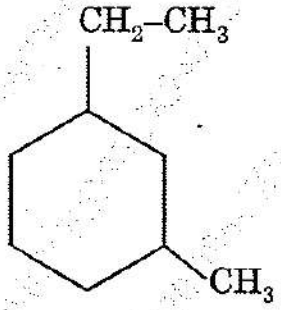
(*g*) State true/false :

(*i*) Benzene is a heterocyclic compound.

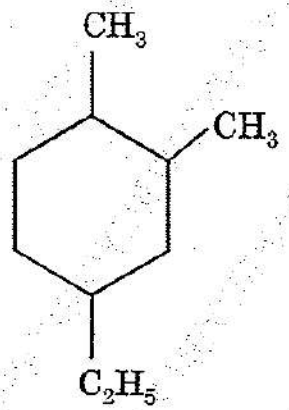
(*ii*) Number of Pi-bonds in benzene is three.

(*h*) Write IUPAC name of the following cycloalkanes :

(*i*)



(*ii*)



(*i*) Write any *two* applications of Diazonium salts.

(*j*) What are drying oils ?

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

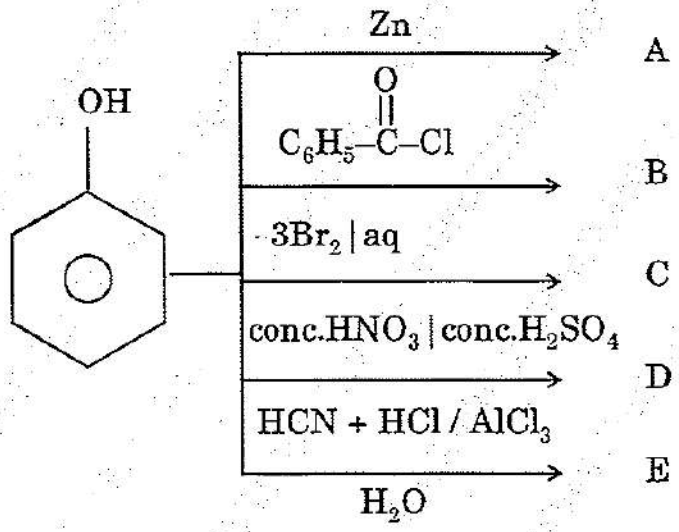
(*a*) Write a note on sulphonation and Friedel-Crafts alkylation of benzene.

(*b*) Write notes on :

(*i*) Baeyer's strain theory

(*ii*) Coulson and Moffitt's modification.

(*c*) Predict the following products :



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

(*a*) Write a brief note on Acid value.

(*b*) Describe structure, *two* syntheses and *four* uses of diphenylmethane.

P.T.O.

(*c*) Outline Haworth synthesis and any *three* chemical reactions of Naphthalene.

(*d*) Distinguish between fats and oils.

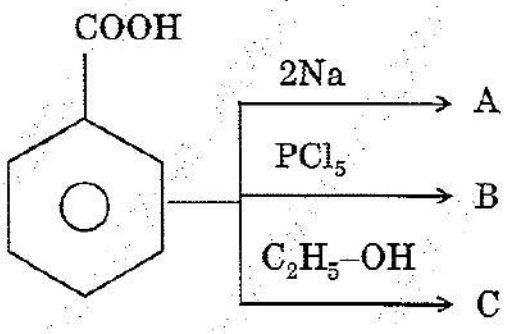
(*e*) Enumerate any *two* syntheses and *three* chemical properties of aromatic amines.

(*f*) What are cycloalkanes ? Write any *four* syntheses of cycloalkanes.

(*g*) Why halogens are ortho-para directing but deactivating towards electrophilic substitution reaction ?

(*h*) Explain Acidity of Phenols.

(*i*) (*i*) Complete the following reactions :



(*ii*) Draw the structure and write any *two* uses of Triphenylmethane.

This question paper contains 3 printed pages]

NM—34—2026

FACULTY OF PHARMACEUTICAL SCIENCE

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

APRIL/MAY, 2026

PHYSICAL PHARMACEUTICS-I

(Saturday, 18-04-2026) (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.

(*iii*) Draw well labelled neat diagram wherever necessary.

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

(*a*) Define buffer capacity.

(*b*) What is spreading co-efficient ?

(*c*) Define Sorensen's pH scale.

(*d*) Define eutectic-mixtures.

P.T.O.

(*e*) Explain about sublimation.

(*f*) What is meant by chelate compounds ?

(*g*) Define crystalisation process.

(*h*) Define refractive index.

(*i*) What is meant by glassy state ?

(*j*) Explain in brief about ideal solutions.

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

(*a*) Describe various methods for determination of surface and interfacial tension.

(*b*) Classify crystals and discuss about crystal habit.

(*c*) Define and classify the complexation and write in detail about chelates.

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

(*a*) Explain in detail about Freundlich adsorption isotherm.

(*b*) Write a note on HLB-scale.

(*c*) Write a note on distribution law with its limitations and applications.

(*d*) What is buffer equation ?

(*e*) Discuss in detail about aerosols.

(*f*) Explain about surface active agents.

(*g*) Explain working of polarimeter for finding optical rotation.

(*h*) Explain difference between solid crystalloids and amorphous state.

(*i*) Write a note on protein drug binding kinetics.

This question paper contains 3 printed pages]

NM—38—2026

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2026

PHARMACEUTICAL MICROBIOLOGY

(Tuesday, 21-04-2026) CBP303T) **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*) Answer to the point only.

1. Answer the following questions : 10×2=20

(*a*) Give the general properties of viruses.

(*b*) Give the various shapes of bacteria.

(*c*) What are iodophores ? Give their advantages.

(*d*) What are HEPA filters ?

P.T.O.

(*e*) Give the contribution of Louis Pasteur in the development of microbiology.

(*f*) Define preservatives with examples.

(*g*) Give the functions of pili.

(*h*) Define microbial spoilage of pharmaceuticals. Give *one* example.

(*i*) Draw the structure of bacteriophage.

(*j*) Enlist the properties of an ideal disinfectant.

2. Answer the following questions (any *two*) : 2×10=20

(*a*) Explain bacterial growth curve. Write about physical conditions affecting bacterial growth.

(*b*) Describe the lytic and lysogenic life cycles of bacteriophages.

(*c*) Explain the RW test for evaluation of disinfectants. Give advantages and disadvantages of phenol coefficient tests.

3. Answer the following questions (any *seven*) : 7×5=35

(*a*) Explain various sources of contamination in aseptic area.

(*b*) Distinguish between Gram positive and Gram negative bacteria.

(*c*) Classify fungi with examples.

(*d*) Discuss the factors which affect preservative efficacy.

(*e*) Explain the icosahedral and helical symmetry of viruses.

(*f*) Explain gaseous sterilization in brief.

(*g*) Explain cup-plate method for evaluation of disinfectants.

(*h*) Explain in brief test for sterility.

(*i*) Explain IMVic tests for bacteria.

This question paper contains 2 printed pages]

NM—42—2026

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2026

PHARMACEUTICAL ENGINEERING

(Thursday, 23-4-2026) CBP304T **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 Hours *Maximum Marks—75*

N.B. :— (1) *All* questions are compulsory.

(2) Draw well labelled diagram wherever necessary.

(3) Write answers to the point.

1. Answer *all* questions : 10×2=20

(*a*) Define Reynolds' number.

(*b*) Give Raoult's law.

(*c*) Define terms Fine powder and Very Fine Powder.

(*d*) Give principle of distillation under reduced pressure.

(*e*) Give applications of drying process.

(*f*) Define terms Filter Media and Filter Aids.

(*g*) Draw diagram of Hammer mill.

P.T.O.

(*h*) Define corrosion and give examples.

(*i*) What are mechanisms of solid mixing ?

(*j*) Define centrifugation and give examples of centrifuge machines.

2. Answer any *two* : 2×10=20

(*a*) Give principle, construction, working, uses, advantages and disadvantages of simple distillation method.

(*b*) Write in detail about fluidised bed dryer.

(*c*) Write in detail about stainless steel and glass as materials of pharmaceutical use.

3. Answer any *seven* : 7×5=35

(*a*) Give principle, construction, working of tray dryer.

(*b*) Explain factors affecting evaporation.

(*c*) Write about fractional distillation method.

(*d*) Give principle, construction, working of sieve shaker machine.

(*e*) Write in detail about ball mill.

(*f*) Write about factors affecting rate of filtration.

(*g*) Define manometer. Write about simple manometer.

(*h*) Write about perforated basket centrifuge.

(*i*) Define term heat exchangers. Write about any *one*.