

INDIRA UNIVERSITY, PUNE

SCHOOL OF PHARMACY- PHARM D

Term End Examination (2025 Pattern) April- May – 2026- First Year

Course Name: Pharmaceutical Organic Chemistry
Course Code: 1.4

Max. Marks: 70
Time: 3:00 Hrs.

Instructions

- All Questions are Compulsory. Write two sections on separate answersheets.
- Neat diagram must be drawn wherever necessary.
- Figures to the right indicate full marks.

Section : I

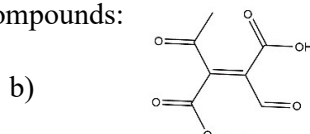
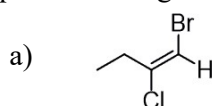
- Q.1.** Define Nucleophile. Explain the reaction, mechanism, kinetics, stereochemistry and reactivity SN1 reactions. **(10 Marks)**

OR

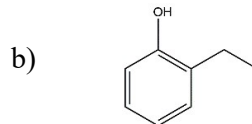
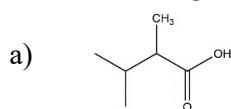
- Q.1.** Define Free Radical and discuss stability of free radical. Explain in detail Halogenation mechanism of alkanes. **(10 Marks)**

- Q.2. Solve any five** **(15 Marks)**

- a) Depict the configuration of given compounds:



- b) State Markovnikov rule and elaborate with reaction
c) Name the following compounds as per IUPAC rules



- d) Draw structures of
(1) 2-butanone (2) 3-hydroxy-2-methyl benzoic acid (3) 2,2-dichloro-3-methylpentane
e) Write Diels Alder reaction. Explain why it is known as (4+2) cycloaddition reaction?
f) Elaborate on stability of carbocations.
g) Define Solubility. Explain the solubility of ionic compounds

- Q.3. Write shorts on any two** **(10 Marks)**

- a) Peroxide initiated Free radical addition mechanism
b) Dehydration of alcohol
c) Structural isomerism
d) E2 mechanism

Section : II

Q.4. Explain reaction, mechanism and applications of Aldol Condensation and Perkin condensation reaction in detail. **(10 Marks)**

OR

Q.4. Define Electrophile. Explain the mechanism of Sulphonation and Friedel craft alkylation in detail. **(10 Marks)**

Q.5. Solve any five **(15 Marks)**

- a) Write reaction and application of Claisen Condensation.
- b) Define resonance and give the maximum resonating structures for
1) Chlorobenzene 2) Nitrobenzene
- c) Draw structures and write uses of Urea and Sodium Saccharin.
- d) Write reaction and mechanism of Kolbe Reaction.
- e) Define activators and deactivators with examples.
- f) Convert acid into amide and alcohol using suitable reagents.
- g) Write reaction and application of Reformatsky reaction.

Q.6. Write shorts on any two **(10 Marks)**

- a) Riemer Tiemann reaction
- b) Reduction
- c) Acidity of Phenols
- d) Williamson Synthesis
