

End Semester/Reappear (Semester IV) Examination July 2022

Programme: B. Pharm

Subject: Pharmaceutical Organic Chemistry –III

Subject Code: BP401T

Enrollment No: _____

Full Marks: 75

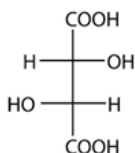
Time: 3 Hrs.

Section I

1. Objective type questions. Answer all questions.

20 x 1 = 20

- i. How many stereoisomers are there for the following structure?



- a. 1 b. 2 c. 3 d. 4
- ii. Which of the following is true of any (S)-enantiomer?
- a. It rotates plane-polarized light to the right.
b. It rotates plane-polarized light to the left.
c. It is a racemic form.
d. It is the mirror image of the corresponding (R)-enantiomer.
- iii. Those stereoisomers which can be interconverted by simple rotation about sigma bonds are called as _____
- a. Conformational isomers c. Functional isomers
b. Geometric isomers d. Tautomer's
- iv. Optically active compound can rotate _____
- a. Ordinary light c. Plane polarized light
b. Monochromatic light d. None of above
- v. Which is more relative towards electrophilic aromatic substitution?
- a. Furan b. Thiophene c. Pyridine d. Pyrrole
- vi. Which metal is used in Clemmensen reduction reaction?
- a. Mg b. Cu c. Zn d. Fe
- vii. Birch reduction is carried out by using _____ metal with liquid ammonia and in presence of alcohol.
- a. Rare earth b. Alkali c. Magnetic d. Ferrous
- viii. Quinine an antimalarial drug contains _____ heterocyclic ring.
- a. Pyrrole b. Azole c. Quinoline d. Thiophene
- ix. 1 Hexane and 3-methylpentane are examples of:
- a. Enantiomers. b. Stereoisomer. c. Diastereomers. d. Constitutional isomers.
- x. Albendazole consist of _____ heterocyclic ring
- a. Pyrrole b. Azole c. Quinoline d. Thiophene

- xi. Oppenauer oxidation catalyzed by
 - a. Fe
 - b. Aluminum Isopropoxide
 - c. Zn
 - d. Cu
- xii. Pyrimidine containing drug is
 - a. 5-fluorouracil
 - b. Quinine
 - c. Propranolol
 - d. Paracetamol
- xiii. LiAlH_4 is used for
 - a. Oxidation
 - b. Reduction
 - c. Esterification
 - d. Metabolism
- xiv. Pyridine is a which type of heterocyclic compound from the following options?
 - a. Six membered heterocyclic compound
 - b. Four membered heterocyclic compound
 - c. Seven membered heterocyclic compound
 - d. Five membered heterocyclic compound
- xv. The electron of Nitrogen participating in the resonance in pyridine is present in which orbital?
 - a. p-orbital
 - b. sp^2 -orbital
 - c. sp^3 -orbital
 - d. sp-orbital
- xvi. Which of the following five membered rings is most resonance stabilized?
 - a. Furan
 - b. Thiophene
 - c. Pyrrole
 - d. Pyridine
- xvii. Which of the following solvents is a heterocyclic compound?
 - a. DMSO.
 - b. Diglyme.
 - c. DMF.
 - d. THF.
- xviii. What is the correct order of reactivity (most reactive first) of pyrrole, furan and thiophene towards electrophiles?
 - a. furan > thiophene > pyrrole
 - b. pyrrole > furan > thiophene
 - c. furan > pyrrole > thiophene
 - d. thiophene > pyrrole > furan
- xix. Histamine is a derivative of:
 - a. imidazole.
 - b. purine.
 - c. pyrrole.
 - d. pyridine.
- xx. What is the product when thiophene reacts with Br_2 in benzene ?
 - a. 2-bromothiophene
 - b. 2,5-dibromothiophene
 - c. 3-bromothiophene
 - d. 3,4-dibromothiophene

Section II

2. Short Answer type questions. Answer any five.

5 x 7 = 35

- a. Discuss Clemmensen reduction with suitable examples.
- b. Write a note on relative aromaticity and reactivity of Pyrrole, Furan
- c. Discuss synthesis and medicinal uses of Pyrimidine.
- d. Explain axial chirality. What are the criteria to be followed for a compound to have axial chirality?
- e. Give the reason for basicity of pyridine. Write the structure and medicinal use of drug containing azepine nucleus
- f. Discuss reactions and medicinal uses of Quinolines
- g. Discuss nomenclature of geometrical isomers (Cis Trans, EZ, Syn Anti systems)

Section III

Long Answer type questions. Answer any two.

2 x 10 = 20

3. Discuss nomenclature and classification of heterocyclic compounds.
4. Write the mechanism and applications of metal hydride reductions (a) NaBH_4 (Sodium borohydride) (b) LiAlH_4 (Lithium Aluminium hydride).
5. Summarize the criteria for a compound to be optically active and the methods used in resolution of racemic mixtures with examples.
