

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

Msc DEGREE EXAMINATION DECEMBER 2022
(Third Semester)

Branch – CHEMISTRY

ORGANIC CHEMISTRY - III

Time: Three Hours

Maximum: 50 Marks

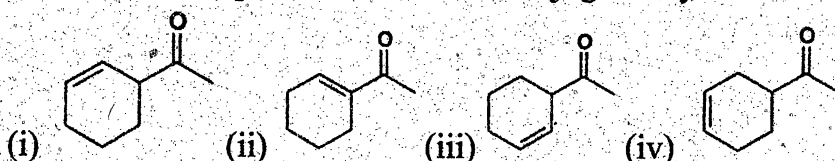
SECTION - A (5 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 1 = 5)

- 1 Find out the compound which has a conjugated system.



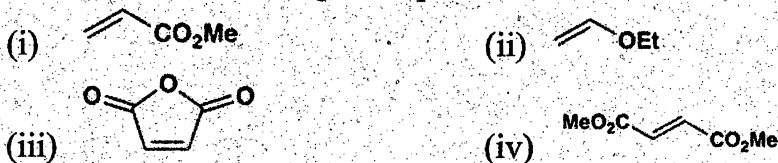
- 2 Choose the photochemical reaction of a molecular entity that contains two π systems separated by a saturated carbon atom to form an ene- substituted cyclopropane.

(i) Photo Fries rearrangement (ii) Dienone-phenol rearrangement
(iii) Di- π -methane rearrangement (iv) Barton rearrangement

- 3 In rearrangement reactions, what types of isomers are produced.

(i) Geometrical isomers (ii) Structural isomers
(iii) Optical isomers (iv) Conformational isomers

- 4 Which of the following dienophiles is the most reactive with buta-1,3-diene?



- 5 The adrenal glands in hyperplasia produce high quantities of this substance

(i) Estrogen (ii) Androgen
(iii) Glucocorticoids (iv) Adrenaline

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a Discuss the aromaticity of cyclopentadienyl anion.

OR

- b State Huckel's Rule. Using this rule, prove that Naphthalene is aromatic.

- 7 a Explain Norrish type I and Norrish type II reactions.

OR

- b Illustrate the photochemistry of carbonyl compounds.

- 8 a Discuss the migration to electron rich carbon by using favorskii rearrangement

OR

- b Give the Mechanism of Wagner Meerwein rearrangement.

Cont...

- 9 a Explain the mode of action and structure of tetracycline.
OR
b Enumerate the stereochemistry of Diel's Alder reaction.
- 10 a Discuss the chemistry of ergosterol.
OR
b Distinguish between oestrone and oestrol.

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a Discuss in detail about aromaticity of azulene and annulenes.
OR
b Explain the aromaticity of nonbenzenoid compounds.
- 12 a Enumerate the photolytic rearrangement of cyclohexadienone
OR
b Analyze the photoreaction of α, β - unsaturated ketones in detail.
- 13 a Explain the mechanism of Hoffmann rearrangement.
OR
b Discuss the mechanism of Baeyer-Villiger Oxidation.
- 14 a Elucidate the structure of penicillin with a neat sketch.
OR
b Explain the claisen sigmatropic rearrangement.
- 15 a Classify and explain female sex hormones in detail.
OR
b Enumerate the conformation aspects of *cis* and *trans* steroids.

Z-Z-Z END