

(6 pages)

Reg. No. :

Code No. : 10323 E Sub. Code : AMCH 53

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2023

Fifth Semester

Chemistry — Core

ORGANIC CHEMISTRY — III

(For those who joined in July 2021 only)

Time : Three hours

Maximum : 75 marks

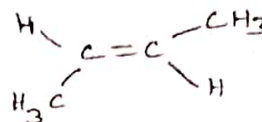
PART A — (10 × 1 = 10 marks)

Answer ALL questions.

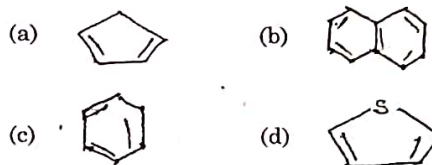
Choose the correct answer :

- Which of the following is optically active
(a) Alanine (b) 2-butanol
(c) Lactic acid (d) All of these
- The number of stereoisomers for 3-pentane 2-ol
(a) 2 (b) 4
(c) 3 (d) 5

3. Assign E or Z configuration to the given compound



- (a) Z-configuration (b) S-configuration
(c) E-configuration (d) R-configuration
4. The energy required to rotate n-butane molecule about the carbon - carbon bond is called _____
(a) Rotational energy
(b) Torsional energy
(c) Enantiomeric energy
(d) Potential energy
5. Which of the following compounds is not aromatic?



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6. The reaction in which benzene reacts with alkyl halide in the presence of a Lewis acid as a catalyst to produce alkyl benzene is as
(a) Nitration
(b) Halogenation
(c) Friedel craft acylation
(d) Friedel craft - alkylation
7. The hetero atom in thiophene is
(a) N (b) O
(c) S (d) Se
8. What is the reactivity order in the following five membered hetero cyclic compounds?
(a) Pyrrole (b) Furan
(c) Thiophene (d) Pyridine
9. Allzarin is a _____ dye.
(a) azo (b) mordant
(c) vat (d) nitro
10. Which of the following is not a chromophore
(a) -N = N- (b) -NO
(c) -NO₂ (d) -NH₂

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PART B — (5 × 5 = 25 marks)

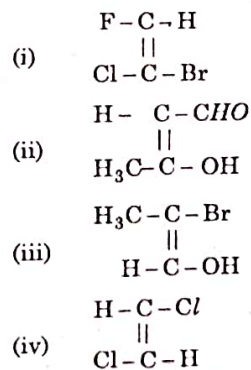
Answer ALL questions choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Explain elements of symmetry with suitable examples.

Or

- (b) Write a note on asymmetric synthesis.

12. (a) Assign E - Z notation to the following structures



Or

- (b) Explain the conformational analysis of cyclopentane.

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[P.T.O.]

13. (a) Write a note on benzenoid and non-benzenoid compounds with suitable example.

Or

- (b) Explain the SN^2 mechanism.

14. (a) Explain the molecular orbital picture of pyrrole.

Or

- (b) Describe the synthesis and electrophilic substitution reactions of isoquinoline.

15. (a) Write a note on resonance theory.

Or

- (b) Discuss the Haworth's synthesis of Naphthalene.

PART C — (5 × 8 = 40 marks)

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Describe the mechanism of racemisation.

Or

- (b) Discuss the optical activity of biphenyl and spiranes compounds.

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17. (a) Describe the conformational analysis of cyclohexane.

Or

- (b) Explain the following terms :

- (i) angle strain
- (ii) torsional strain
- (iii) vander walls strain
- (iv) dihedral angle.

18. (a) Explain the mechanism of Friedal - Crafts alkylation and acylation.

Or

- (b) Describe the methods of determination of orientation by

- (i) Korner's absolute method
- (ii) Dipolemoment method.

19. (a) Compare the aromatic character of pyrrole, furan and thiophene.

Or

- (b) Explain the preparation, mechanism of electrophilic substitution reactions of indole.

20. (a) Discuss the structure of naphthalene.

Or

- (b) Describe the classification of dyes, according to the method of their applications.

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