

(6 pages)

Reg. No. :

Code No. : 41102 E Sub. Code : JMCH 51

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2018.

Fifth Semester

Chemistry — Main

ORGANIC CHEMISTRY — III

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which of the following has highest priority in R, S-notation?

- (a) -CHO
- (b) -OH
- (c) -COOH
- (d) -CH₃

2. 2,2'-diamino, 6,6'-dimethyl biphenyl is optically active due to

- (a) asymmetric carbon
- (b) asymmetric molecule
- (c) axis of symmetry
- (d) planarity

3. Among the various conformations of 1,2-dichloroethane, which is least stable?

- (a) Anti form
- (b) Fully eclipsed
- (c) Gauche
- (d) Eclipsed

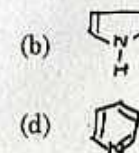
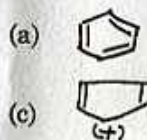
4. Cis-trans isomerism is shown by

- (a) 1-butene
- (b) 2-butene
- (c) 1-propene
- (d) isobutene

5. The electrophile involved in sulphonation is

- (a) SO₃⁺
- (b) SO₃
- (c) SO₃⁻
- (d) SO₃'

6. One among the following compound is non-aromatic



Page 2 Code No. : 41102 E



7. Bischler-Napieralski synthesis is used to prepare
 (a) Quinoline (b) Isoquinoline
 (c) Pyridine (d) Pyrrole
8. Electrophilic substitution reaction takes place in pyrrole at position
 (a) 3 (b) 4
 (c) 2 (d) None
9. Which is high energy electron transition?
 (a) $\sigma - \sigma^*$ (b) $\pi - \pi^*$
 (c) $n - \sigma^*$ (d) $n - \pi^*$
10. With which oxidising agent naphthalene give phthalic acid on oxidation?
 (a) O_2/V_2O_5 (b) alkaline $KMnO_4$
 (c) acidic $KMnO_4$ (d) O_3

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Give R, S notation for d, l and meso tartaric acid.
- Or
- (b) Explain the optical isomerism of allenes and spiranes.

Page 3 Code No. : 41102 E

12. (a) Explain the conformational analysis of n-butane.

Or

- (b) Explain the determination of geometrical isomers.
13. (a) Explain the mechanism of nitration.

Or

- (b) What are ortho-para directors? Explain the electronic interpretation of ortho-para directors.
14. (a) Explain skraup synthesis of quinoline. Give the electrophilic substitution reactions of quinoline.

Or

- (b) Compare the basicity of pyridine piperidine and pyrrole.
15. (a) Discuss Otto Witt's theory of colour and constitution.

Or

- (b) Explain the oxidation reactions of naphthalene.

Page 4 Code No. : 41102 E

[P.T.O.]



PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Explain :
(i) Racemisation
(ii) Resolution.

Or

- (b) Write notes on :
(i) Stereospecific reactions
(ii) Asymmetric synthesis.
17. (a) Explain the nomenclature of geometrical isomers of cis-trans, syn-anti and E, Z-notations with suitable examples.

Or

- (b) Explain the conformational analysis of cyclohexane using potential energy diagram.
18. (a) Explain benzyne mechanism with suitable evidences.

Or

- (b) Explain the different rules of orientation with suitable examples.

Page 5 Code No. : 41102 E

19. (a) Explain the preparation and nucleophilic substitution reactions of pyridine with mechanism.

Or

- (b) Give the synthesis and reactions of indole and iso-quinoline.
20. (a) Give the preparation and uses of :
(i) Malachite green
(ii) Alizarin and
(iii) Phenolphthalein.

Or

- (b) Discuss the structure of anthracene.
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Page 6 Code No. : 41102 E

