

E 4118

(Pages : 2)

Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S) EXAMINATION, OCTOBER 2012

Third Semester

Core Course —FUNDAMENTALS OF ORGANIC CHEMISTRY

(Common for the Programmes B.Sc. Chemistry Model I and Model II B.Sc. Petrochemicals and B.Sc. Chemistry Environment and Water Management)

Time : Three Hours

Maximum Weight : 25

Section A

Answer all questions.

Each bunch of four questions carries a weight of 1.

I. Fill in the blanks :

- 1 The Diels Alder reaction between propylene and butadiene gives _____.
- 2 IUPAC name of Allyl bromide is _____.
- 3 Electrophile in aromatic nitration reaction is _____.
- 4 Mesro form of tartaric acid is in active due to _____.

II. 5 What are carbenes.

- 6 What is sigmatropic rearrangement.
- 7 Give one non-benzenoid aromatic compound with its structure.
- 8 Mono chloro acetic acid and acetic acid which is more acidic.

III. 9 How many optical isomers are possible for $\text{CH}_2\text{OH-CHOH-CHOH-CHO}$.

- 10 What do you mean by heterolytic fission.
- 11 What are free radicals ?
- 12 What do you mean by achiral molecule.

IV. 13 Define configuration ?

- 14 What do you mean by substitution reaction. Give one examples.
- 15 What is Markonikoff's rule ?
- 16 Give one neutral nucleophile.

(4 × 1 = 4)

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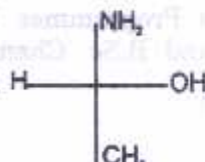
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Section B

Answer any five questions.
Each question carries a weight of 1.

- 17 How does the Allyl cation stabilized ?
18 Draw the Newmann projections of the conformations of Butane.

- 19 Assign the conformation R or S to the following compound



- 20 What is Racemization ? Explain with examples.
21 Write the conditions required for a Biphenyl molecule to be optically active.
22 What do you mean by Walden inversion ? Explain.
23 Discuss the Geometrical Isomerisms in Maleic and Fumaric acids.
24 What are benzyne ? How are they formed. ?

(5 × 1 = 5)

Section C

Answer any four questions.
Each question carries a weight of 2.

- 25 What are pericyclic reactions ? How are they classified ? Discuss.
26 Discuss the factors that effect the stability of different carbanions.
27 What is asymmetric synthesis ? Discuss in detail.
28 What are the conditions required for a molecule to be optically active.
29 What are the products formed when Naphthalene is nitrated. Give the mechanism involved in it.
30 Discuss the different types of polymerisations also. Discuss the free radical mechanism of polymerisation.

(4 × 2 = 8)

Section D

Answer any two questions.
Each question carries weight of 4.

- 31 Discuss the conformational isomerism in ethane ? Explain the relative stabilities of its conformers.
32 Explain the term aromaticity ? State Huckels rule ? Discuss its significance on the basis of molecular orbital theory. Illustrate its applicability to cyclic compounds taking two examples.
33 What are the products formed when HBr is added to propene in the presence and absence of peroxide. Discuss the mechanism and laws involved in it.

(2 × 4 = 8)