

**FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, MAY 2011**

(CSS)

Core Course—Chemistry

CH 4B 07—ORGANIC CHEMISTRY—I

Time : Three Hours

Maximum Weightage : 30

*Write equations wherever necessary.*I. Multiple choice and fill in the blanks type questions. Answer all *twelve* questions :

1 Corey-House reaction is governed by :

- (a) Electrophilic substitution.
- (b) Nucleophilic substitution.
- (c) Free radical substitution.
- (d) Polymerisation reaction.

2 The most stable conformation of n-butane is the \_\_\_\_\_ conformation.

- (a) eclipsed.
- (b) staggered.
- (c) skew.
- (d) anti.

3 Which alkene among the following is most stable ?

- (a) *Cis*-2-butene.
- (b) *Trans*-2-butene.
- (c) 1-butene.
- (d) all are equally stable.

4 Kharasch effect is observed in the addition of \_\_\_\_\_ to an unsymmetrical alkene.

- (a) HBr.
- (b) HCl.
- (c) HI.
- (d) all of the above.

5 A reagent for *cis* hydroxylation is :

- (a) OsO<sub>4</sub>.
- (b) H<sub>2</sub>O<sub>2</sub>/H<sup>+</sup>.
- (c) benzoyl peroxide.
- (d) none of the above.

6 \_\_\_\_\_ is a neutral electrophile.

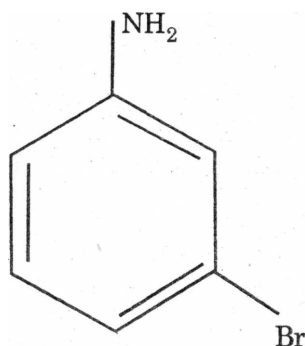
The reagent used for the oxidation of toluene to benzoic acid is \_\_\_\_\_

8 The shape of carbocation is \_\_\_\_\_

Turn over

9 *Meso* tartaric acid is optically inactive due to \_\_\_\_\_ compensation.

10 The IUPAC name of :



is \_\_\_\_\_

11 Citral is used for \_\_\_\_\_

12 PMMA is \_\_\_\_\_

(12 x  $\frac{1}{4}$ )

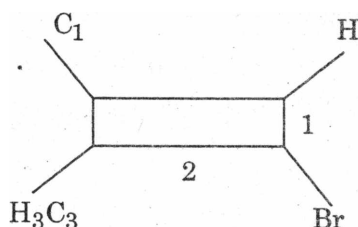
II. Short answer type questions. Answer all *nine* questions :

13 What is Wurtz reaction ?

14 Draw the most stable conformation of methylcyclohexane.

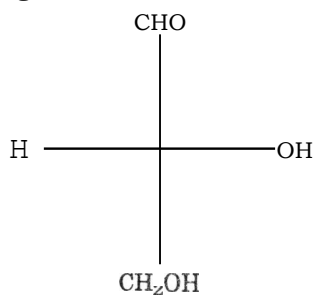
15 What happens when ethyne is passed over ammoniacal silver nitrate ?

16 Name the following alkene : —



17 What are nitrenes ?

18 Assign the absolute configuration of the following molecule : —



19 Draw an optically active compound, does not having a chiral carbon.

20 Write the correct order of stability of carbanions.

21 Draw the structure of Limonene.

(9 x 1 = 9)

III. Short essays or paragraph questions. Answer any *five* questions :

22 Illustrate asymmetric synthesis citing an example.

23 Explain the Haworth's synthesis of naphthalene.

24 Give a brief account of the structure of natural rubber.

25 Discuss briefly the importance of the following reactions : —

(a) **Ozonolysis.**

(b) Periodic acid oxidation.

26 Explain the structure and shape of ethylene molecule.

27 Give a brief note on ring strains in **cyclopropane** and **cyclobutane**.

28 Explain the mechanism of addition of **HBr** to propene in the presence and absence of Peroxides.

(5 x 2 = 10)

IV. Essay questions. Answer any *two* questions :

29 Write notes on optical isomerism, methods of resolution and Optical activity of **Biphenyls**.

30 Discuss the mechanisms of nitration and **sulphonation** of naphthalene and **bromination** of benzene.

31 Discuss the structure, hybridisation and stability of **carbocations** and **carbenes**.

(2 x 4 = 8)