

Roll No.....  
**MSCCH-12 (M.Sc.Chemistry)**  
**First Year Examination 2013**  
**CHE-502**  
**Organic Chemistry**

**Time: 3 Hrs.**

**Max. Marks: 60**

**Note:** The Question paper is divided into three sections A, B and C. Attempt Questions of each section according to given instructions.

**नोट :** यह प्रश्नपत्र 'क', 'ख' और 'ग' तीन खण्डों में विभाजित हैं प्रत्येक के निर्देशानुसार प्रश्नों का उत्तर दें।

**Section-A**  
**खण्डक-**

**Long Answers Question) (दीर्घ उत्तरीय प्रश्न)**

**Note :** Answer any two questions. Each Question carries 15 marks.

2 x 15 = 30

**नोट** अंकों का है। 15 क प्रश्न दीजिए। प्रत्ये का उत्त दो प्रश्नोंकिन्हीं :

1. Attempt any Four of the following.
  - (a) What is a staggered and skew conformation?
  - (b) Why molecule like ethylene glycol and ethylene chlorohydrins gauche conformation is favored over anti conformation.
  - (c) What are stereoselective and stereospecific reaction?
  - (d) Explain optical activity due to chiral axis?
  - (e) Define homotropic face and heterotropic faces?
2. What are the conditions for Aromaticity? What is the Huckel's rule? Write a short note on aromaticity of Annulenes?
3. Addition of HX an alkenes is regioselective why? Write note on stereochemistry of addition reaction? Discuss Oxymercuration-demercuration reaction?
4. Discuss any **Three** of the following.
  - (a) What are disaccharides? Name two naturally occurring polysaccharides of  $\alpha$ - D glucose? Discuss briefly their structures.
  - (b) Write note on (i) Mutarotation (ii) Anomers (iii) Ring structure of glucose.
  - (c) Explain terpenoids and alkaloids in brief, give the suitable example of terpenoid and Alkaloids.
  - (d) Define Ruff degradation of sugars with suitable examples.

**Section-B/खण्ड ख**

**(Short Answer's Question) (रीय प्रश्नलघु उत्त)**

**Note:** Answer any **04** Question. Each question carries 5 marks.

4 x 5 = 20

**नोट** किन्हीं :चार प्रश्नों का उत्तर दीजिए। प्रत्येक प्रश्न 05 अंकों का है।



Section-C/खण्ड ग

Objective Question (Compulsory)/वास्तुनिष्ठ प्रश्न (अनिवार्य)

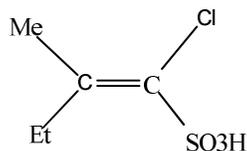
Note : Answer all questions. Each question carries 01 mark.

10 x 1 = 10

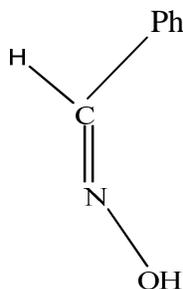
नोट : सभी प्रश्नों का उत्तर दीजिए। प्रत्येक प्रश्न 01 अंक का है।

1. Assign E or Z configuration to the following.

(a)



(b)



2. The number of optically active isomers of HOCH<sub>2</sub>(CHOH)<sub>4</sub>CHO is-----

3. Draw the *cis* and *trans* conformers of 2- butene.

4. Which of the following is Lewis acid?

NH<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, HNO<sub>3</sub>, AlCl<sub>3</sub>

5. Which of the following is -M effecting group?

CH<sub>3</sub>, OH, COOH, NH<sub>2</sub>

6. In which compound electrophilic addition takes place according to anti-Markovnikof rule.

(i) CH<sub>2</sub>=CH-NO<sub>2</sub>    (ii) CH<sub>2</sub>=CH-CHO

(iii) CH<sub>2</sub>=CH-CN    (iv) CH<sub>3</sub>-CH=CH<sub>2</sub>

7. Complete the following reaction.



8. Which of the following is primary metabolites:

(i) Colour    (ii) Pigments

(iii) Proteins    (iv) Poisons

9. Terpenes have the general formula C<sub>10</sub>H<sub>16</sub> is-----

10. Oligosaccharides are that carbohydrate molecules which contain-----unit monosaccharides.