Roll No. .....

(07/22-II)

# 5190

## B. Sc. EXAMINATION

(For Batch 2014 & Onwards)

(Second Semester)

CHEMISTRY

Paper–VI (CH-106)

Organic Chemistry

*Time : Three Hours* *Maximum Marks : 27*

**Note :** Attempt *Five* questions in all, selecting *two* questions from each Section. Q. No. **1** is compulsory.

1. (a) Why trans alkenes are more stable than cis alkenes ?

   (b) Discuss relative reactivities of alkenes.

   (c) Define aromaticity and Huckel's rule. Will cyco-octatetraene show aromatic character ?

(d) Chlorine deactivates the ring and directs the substituents to ortho- and para-positions. Justify.

(e) Give various classes of dienes along with their structures. Out of these which class is more stable and why ?

(f) Acetylene forms metal acetylides but dimethyl acetylene does not form such derivatives, why ?

(g) Alkyl chloride is more reactive than vinyl chloride. Explain. $7 \times 1 = 7$

## Section A

2. (a) State and explain Markownikoff's rule. 1

(b) Mechanism of dehydrohalogenation of alkyl halides. 2

(c) On reductive analysis, a compounds gave the following : 2

(i) Ethanediol

(ii) Propanone

(iii) Ethanol.

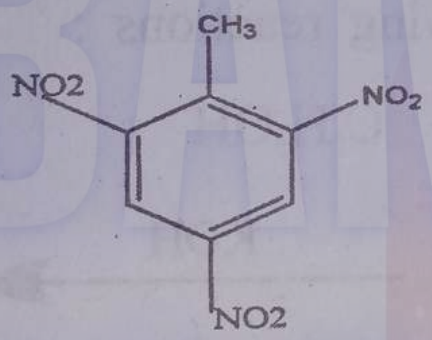
Write the formula of the compound and give its IUPAC name.

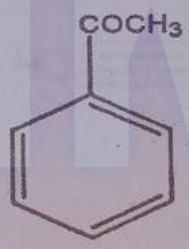
3. (a) Discuss the mechanism of Friedal Craft's acylation of benzene. 2

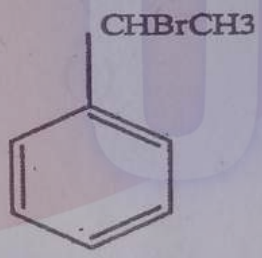
(b) What products would you expect to be formed when the following are subjected to nitration : Nitrobenzene, Phenol, Toluene. 3

4. (a) Give the mechanism of sulphonation of benzene. 2

(b) Give suitable names to the following compounds : 1.5




(c) Cyanide group is meta directing, explain. 1.5

## Section B

5. (a) What is 4 + 2 cycloaddition reaction ? Discuss with example and give its synthetic utility. 2

(b) Explain why electrophilic addition products are temperature dependent in conjugated dienes. 2

(c) Give the structure and names of the products expected from the reaction of the following with 1, 3-Butadiene : 1

2 moles of bromine, 1 mole of HCl.

6. (a) Write short notes on the following : 3

(i) Acidic nature of 1-Alkynes

(ii) Nucleophilic addition reactions of alkynes.

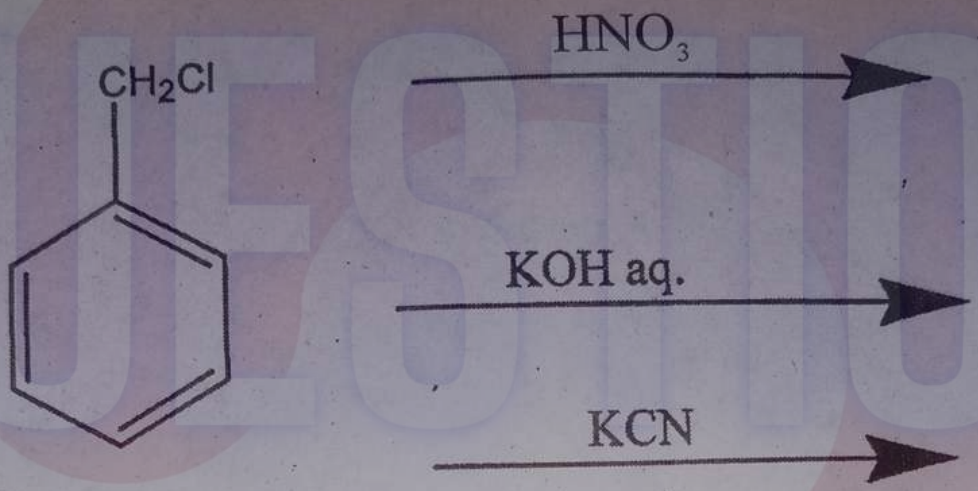
(b) Complete the following reactions : 2

(i) $CH \equiv CH + C_2H_5OH \xrightarrow{KOH}$

(ii) $CH_3 - C \equiv CH \xrightarrow{H_2SO_4,\ HgSO_4}$ .

7. (a) Discuss benzyne mechanism for nucleophilic aromatic substitution and give evidence in its favor. 2.5

(b) Complete the following reactions : 1.5




(c) Vinyl chloride and chlorobenzene show similar reactivity towards SN reaction, justify. 1