



SLR-ST – 29

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**B.Sc. (Part – I) (Semester – II) Examination, 2018**  
**CHEMISTRY**  
**Paper – III : Organic Chemistry**  
**(CBCS Pattern)**

Day and Date : Friday, 13-4-2018  
Time : 10.30 a.m. to 1.00 p.m.

Total Marks : 70

- Instructions :** 1) **All questions are compulsory.**  
2) Draw **neat** diagram and give equations **wherever** necessary.  
3) Figures to the **right** indicate **full** marks.

1. Choose the most correct alternative for the following and rewrites the sentence : **14**
- i) Dienes in which the double bonds are in succession are called \_\_\_\_\_ dienes.  
a) conjugated      b) cumulated      c) isolated      d) hetero
  - ii) In homolytic fission of covalent bond the intermediate species obtained are  
a) Free radical      b) Carbocation      c) Carbene      d) Carbanion
  - iii) General formula of cycloalkane is  
a)  $C_nH_{2n+1}$       b)  $C_nH_{2n+2}$       c)  $C_nH_{2n}$       d)  $C_nH_{2n-2}$
  - iv) Mesotartaric acid is optically inactive due to  
a) external compensation      b) geometrical isomerism  
c) conformational isomerism      d) internal compensation
  - v) The reactive species in nitration of benzene is  
a)  $NO_3^+$       b)  $NO_2^-$       c)  $HNO_3$       d)  $NO_2^+$
  - vi) Inductive effect involves  
a)  $\sigma$  electrons      b)  $\pi$  electrons  
c)  $\sigma$  and  $\pi$  electrons      d) lone pair of electrons
  - vii) Acidic hydrogens are present in  
a) ethene      b) ethane      c) ethyne      d) benzene
  - viii) Electrophiles are \_\_\_\_\_ species.  
a) electron loving      b) electron hating  
c) nucleus loving      d) nucleus hating

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- ix) Arynes are the aromatic compounds containing a formal \_\_\_\_\_ bond.  
a) one triple      b) two triple      c) three triple      d) four triple
- x) Among the ethane, ethane and ethyne, the C-H bond energy is  
a) equal in all      b) more in ethane  
c) more in ethene      d) more in ethyne
- xi) In benzene C-C bond distance is  
a)  $1.39\text{Å}$       b)  $1.54\text{Å}$       c)  $1.34\text{Å}$       d)  $3.40\text{Å}$
- xii) Hyperconjugation effect involves the delocalization of \_\_\_\_\_.  
a)  $\sigma$  electrons      b)  $\pi$  electrons  
c)  $\sigma$  and  $\pi$  electrons      d) lone pair of electrons
- xiii) Anti-Markownikoffs addition of HBr is not observed in  
a) propene      b) but-1-ene      c) but-2-ene      d) pent-2-ene
- xiv) All carbon atom of benzene are \_\_\_\_\_ hybridized.  
a)  $sp$       b)  $sp^2$       c)  $sp^3$       d)  $dsp^3$

2. Attempt **any seven** of the following :

14

- i) Define the terms :  
a) Carbocation      b) Carbene
- ii) Complete the following reactions :  
a) Cyclopropane +  $\text{Cl}_2 \xrightarrow{\text{light}}$  ?  
b) Cyclopropane + HBr  $\longrightarrow$  ?
- iii) Define the terms :  
a) Bond angle      b) Bond length.
- iv) Explain Saytzeff rule for the dehydration of alcohol.
- v) Define geometrical isomerism with example.
- vi) Define the terms :  
a) Anti-aromatic compound  
b) Aromatic compound
- vii) Explain in short meaning of curved arrow.
- viii) Draw the resonating structure of phenol.
- ix) Write structures of the following :  
a) 2-Methyl prop-1-ene  
b) But-2-yne.

Set P



3. A) Attempt **any two** of the following : 10

- i) Write note on 1, 2 and 1, 4 addition reactions of 1, 3-butadiene.
- ii) Explain the terms enantiomers and distereoisomers with suitable example.
- iii) State Huckels rule. Explain aromaticity of Naphthalene by applying Huckels rule to it.

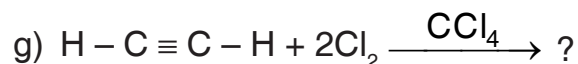
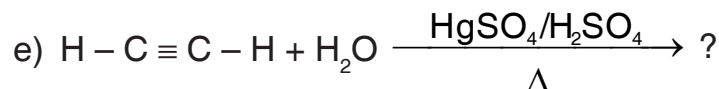
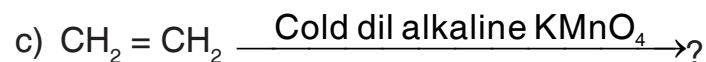
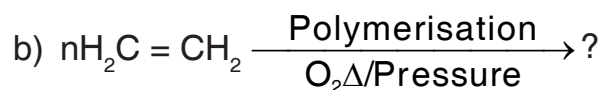
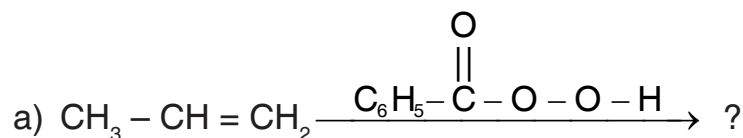
B) Explain the mechanism involved in chlorination of methane. 4

4. Attempt **any two** of the following : 14

- i) Write a note on addition reactions.
- ii) What is hybridization ? Explain the formation of ethylene on the basis of hybridization.
- iii) What is Friedle-Craft reaction ? Discuss the mechanism involved in Friedle-Crafts alkylation.

5. Attempt **any two** of the following : 14

- i) What are alkanes ? How is Wurtz and Corey-House reaction useful for the preparation of alkanes ?
- ii) Discuss the optical isomerism of tartaric acid.
- iii) Predict the products of the following :



Set P