

# C.U.SHAH UNIVERSITY

## Winter Examination-2015

Subject Name: Chemistry-II

Subject Code: 4SC02CHC1

Branch: B.sc.(All)

Semester: II

Date: 20/11/2015

Time: 10:30 To 01:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

- Q-1**      **Attempt the following questions:**      **(14)**
- Define: Unit cell      (1)
  - What are gerade molecular orbitals?      (1)
  - Define: Ionization isomerism      (1)
  - Give the IUPAC name of  $C_6H_5CH_2CH_2OH$       (1)
  - Complete following reaction.      (1)
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- Define: Half cell      (1)
  - Define: Wavelength      (1)
  - Define: Promoters      (1)
  - What is common ion effect?      (1)
  - What is TDS?      (1)
  - Calculate bond order of  $B_2$  molecule.      (1)
  - Write any two physical properties of ether.      (1)
  - Write the statement of Stark-Einstein law.      (1)
  - What is homogeneous catalytic reaction?      (1)

**Attempt any four questions from Q-2 to Q-8**

- Q-2**      **Attempt all questions**      **(14)**
- Explain Born-Haber cycle.      (7)
  - Calculate  $r_+/r_-$  for trigonal structure.      (4)
  - What are Schottky & Frenkel defect?      (3)
- Q-3**      **Attempt all questions**      **(14)**
- Discuss in detail molecular orbital configuration of NO molecule.      (7)
  - Give difference between valence bond theory & molecular orbital theory.      (4)
  - Explain co-ordination isomerism.      (3)



- Q-4** **Attempt all questions** (14)
- (a) Explain Reimer-Tiemann reaction with mechanism. (5)  
(b) Discuss the reaction of ethers with conc. H<sub>2</sub>SO<sub>4</sub>, HI, PCl<sub>5</sub> and acetyl chloride. (5)  
(c) Discuss various methods of preparation of phenols. (4)
- Q-5** **Attempt all questions** (14)
- (a) Discuss various methods of preparation of amines. (5)  
(b) Explain Heisenberg test for analysis of amine. (5)  
(c) Explain Enzyme catalysis. (4)
- Q-6** **Attempt all questions** (14)
- (a) Explain Galvanic cell. (5)  
(b) Discuss Lambert-Beer law. (5)  
(c) Discuss Nernst equation & its applications. (4)
- Q-7** **Attempt all questions** (14)
- (a) Explain the adsorption theory of catalysis. (5)  
(b) Discuss methods to calculate hardness of water. (5)  
(c) 200 ml of  $1.3 \times 10^{-3}$  M AgNO<sub>3</sub> is mixed with 100 ml  $4.5 \times 10^{-5}$  M Na<sub>2</sub>S solution will precipitation occur? ( $K_{sp} = 1.6 \times 10^{-49}$ ) (4)
- Q-8** **Attempt all questions** (14)
- (a) Write Fries Rearrangement with mechanism. (5)  
(b) Explain charcoal test with example. (5)  
(c) Discuss total suspended solid and total dissolved solid. (4)

