

C.U.SHAH UNIVERSITY

Winter Examination-2018

Subject Name: Chemistry-II

Subject Code: 4SC02CHC1/4SC02CHE1

Branch: B.Sc. (All)

Semester: 2

Date: 29/10/2018

Time: 02:30 To 05:30

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.
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Q-1

(14)

Attempt the following questions:

- | | |
|---|----|
| a) What is called EMF series? | 01 |
| b) Define promoters | 01 |
| c) Define: Electrochemical cell | 01 |
| d) Define: Unit cell | 01 |
| e) What do you mean by electrode? | 01 |
| f) Define activation energy | 01 |
| g) Define common ion effect. | 01 |
| h) What is called catalyst? | 01 |
| i) What is called PPM? | 01 |
| j) Define ionic solids | 01 |
| k) What do you mean by TDS? | 01 |
| l) What is called homogenous catalyst? | 01 |
| m) Define point defect | 01 |
| n) What do you mean by crystal lattice? | 01 |

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

Q-2

Attempt all questions

(14)

- | | |
|---|----|
| a) Explain catalysis in detail. | 07 |
| b) Explain the method for calculation of heat of formation based on Hess's law. | 07 |

Q-3

Attempt all questions

(14)

- | | |
|--|----|
| a) Draw the MO energy level diagram for N_2^- and explain the stability, magnetic properties and the bond order. | 07 |
| b) Discuss packing efficiency in hcp and ccp structure. | 07 |



- Q-4** **Attempt all questions** **(14)**
 a) Discuss the bond order, stability and magnetic properties of O_2^+ using MOT diagram. **07**
 b) Explain the determination of Ca^{+2} ion and Mg^{2+} ion in the given water sample using complexometric titration. **07**
- Q-5** **Attempt all questions** **(14)**
 a) Explain the schottky and frenkel defects in detail. **07**
 b) Discuss the relation between ΔG , ΔH , ΔS and K . **07**
- Q-6** **Attempt all questions** **(14)**
 a) What are ionic solids? Give their characteristics. **05**
 b) Explain the differences between V.B.T. and M.O.T. **05**
 c) Write a note on galvanic cell. **04**
- Q-7** **Attempt all questions** **(14)**
 a) Discuss on the Nernst equation and its uses. **07**
 b) 70mL of 6.0×10^{-3} M $CaCl_2$ is mixed with 50mL of 0.04M NaF_2 . Will precipitation of CaF_2 occur? ($K_{sp} = 4.0 \times 10^{-11}$). **07**
- Q-8** **Attempt all questions** **(14)**
 a) Write a note on temporary hardness of water. **05**
 b) Explain the reaction involved in borax bead test. **05**
 c) Discuss the enzyme catalysis. **04**

