**Enrollment No: _____ Exam Seat No: _____**

# 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 $\Delta G$, $\Delta H$, $\Delta S$ 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 $6.0X10^{-3}$ 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**