Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name: Chemistry-II

Subject Code: 4SC02CHC1/4SC02CHE1 Branch: B.Sc. (All)

Semester: 2 Date: 09/05/2017 Time: 02:00 To 05:00 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)**

a) Define: Unit cell **(1)**

b) Define: Ungerade Molecular Orbital **(1)**

c) BMO is formed by addition overlapping or subtractive overlapping of atomic orbitals? **(1)**

d) What is the bond order of H_2^+? **(1)**

e) What is filterable solid? **(1)**

f) Give the full form T.S.S. **(1)**

g) Give the principle of Turbidity. **(1)**

h) Define: Common ion effect **(1)**

i) Define: Auto catalyst **(1)**

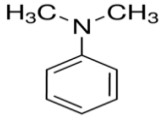
j) Define: Half cell **(1)**

k) Complete following reaction. **(1)**

l) Draw the structure of 2-phenyl-ethanol. **(1)**

m) Write any two physical properties of ether. **(1)**

n) Give the IUPAC nomenclature of the following compound. **(1)**



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

Q-2 **Attempt all questions** **(14)**

a) Describe the electronic configuration, bond order and magnetic properties of CO using MO energy level diagram. **(5)**

b) Give the differences between Valence bond theory and Molecular orbital **(5)**

theory.

	c)	Discuss the molecular energy level diagram for N_2.	**(4)**
Q-3		**Attempt all questions**	**(14)**
	a)	Explain Born-Haber cycle with example.	**(7)**
	b)	Discuss Schottky defects, Frenkel defect and its consequences.	**(7)**
Q-4		**Attempt all questions**	**(14)**
	a)	Discuss Dow's process and Cumene process for the production of phenol.	**(5)**
	b)	Explain Kolbe-Schmitt reaction and its mechanism.	**(5)**
	c)	Discuss the reaction of ethers with conc. H_2SO_4, HI, PCl_5 and acetyl chloride.	**(4)**
Q-5		**Attempt all questions**	**(14)**
	a)	Discuss Hinsberg test for the analysis of amines.	**(5)**
	b)	Discuss various methods of preparation of amines.	**(5)**
	c)	Give conversion of i) 2,4,6-Tribromoaniline from benzene ii) P-Bromo aniline from aniline	**(4)**
Q-6		**Attempt all questions**	**(14)**
	a)	Discuss Nernst equation & its applications.	**(5)**
	b)	Explain acid-base catalyst and the application of catalyst.	**(5)**
	c)	Discuss Promoters and anticatalyst with suitable example.	**(4)**
Q-7		**Attempt all questions**	**(14)**
	a)	Give method to determination of acidity and alkalinity.	**(5)**
	b)	Give method for calculating of hardness of water.	**(5)**
	c)	Calculate ksp of $Fe(OH)_3$ whose solubility is 1.0×10^{-3}.	**(4)**
Q-8		**Attempt all questions**	**(14)**
	a)	Draw the resonating structure of p-cresol and m-nitrophenol.	**(5)**
	b)	Write a note on defects and conduction.	**(5)**
	c)	200 ml of 1.3×10^{-3} M $AgNO_3$ is mixed with 100 ml 4.5×10^{-5} M Na_2S solution will precipitation occur? ($Ksp = 1.6 \times 10^{-49}$)	**(4)**