C.U.SHAH UNIVERSITY
Summer Examination-2018

Subject Name: Chemistry - I
Subject Code: 4SC01CHC1/4SC01CHE1   **Branch: B.Sc. (All)**

Semester: 1   **Date: 31/03/2018**   **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.

Q-1   **Attempt the following questions:**   **(14)**

a)   Define: Addition reaction   1
b)   Define: Thermodynamics   1
c)   Define: Atomic radii   1
d)   Define: Hybridisation   1
e)   Define: Adsorbent   1
f)   Define an acid according to Savante Arrhenius concept.   1
g)   Draw the chemical structure of 1:3-cyclo butadiene.   1
h) E^2 reaction is _____.   1
         (a) One step reaction (b) two step reaction (c) three step reaction

i)   known as _____.   1
         (a) Cyclo propane (b) cyclo butane (c) butane

j)   Addition of an electron to the atom results in the formation of _____.   1
         (a) Covalent bond   (b) anion   (c) cation

k)   The angle between two sp-hybrids is _____.   1
         (a) 120° (b) 90° (c) 180°

l)   A system which can exchange energy but not matter with its surrounding is
         _____ system.   1
         (a) Closed   (b) open   (c) isolated.

m)   Mathematically change in enthalpy is written as _____.   1
         (a) $\Delta H = \Delta E + P\Delta V$ (b) $\Delta H = \Delta E + PV$ (c) $\Delta H = \Delta q + P\Delta V$

n)   For acidic solution value of pH is _____.   1
         (a) $pH = 7$ (b) $pH < 7$ (c) $pH > 7$

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

Q-2		**Attempt all questions**	**(14)**
	a	Explain Crystal Radius and Ionic radius.	05
	b	Write the reactions of alkyl halides with KSH, KNO_2 and K_2S.	05
	c	Write a note on Elimination reaction.	04

Q-3		**Attempt all questions**	**(14)**
	a	What is Substitution reaction ? Discuss on S_N^1 reactions with mechanism.	07
	b	What is hybridization? And Explain sp3 hybridization with suitable example.	07

Q-4		**Attempt all questions**	**(14)**
	a	Gives any one method of preparation of large ring cyclo alkanes.	05
	b	Write a short note on Electronegativity.	05
	c	Write the Freund's method for the preparation of cyclo alkanes.	04

Q-5		**Attempt all questions**	**(14)**
	a	State all the statements of 1st law of thermodynamics.	05
	b	Define heat capacity and derive $C_p-C_v = R$.	05
	c	What is ionisation potential? Explain it in detail with examples.	04

Q-6		**Attempt all questions**	**(14)**
	a	Derive Langmuir isotherm equation.	07
	b	A sample of 0.75 gm of NaCl is dissolved in water and made upto 100 ml. calculate the Normality and Molarity of this solution. [Na=23,Cl=35.5]	07

Q-7		**Attempt all questions**	**(14)**
	a	Write the uses of Adsorption.	05
	b	Write a note on type of System.	05
	c	Write a note on Preparation of a Standard Solution.	04

Q-8		**Attempt all questions**	**(14)**
	a	Derive the equation of Ph for the solution of salt of weak acid and weak base.	07
	b	Write the chemical properties of cycloalkanes.	07