AJ&K Board HSSC – I
Chemistry Model Question Paper (Objective)

Time : 25 Minutes

Marks : 17

Note:- Section 'A' is compulsory. All parts of this section to be answered. Deleting and overwriting is not allowed. Donot use lead pencil.

Section – A (Objective Part)

1- Each question has four possible answers, Tick (√) the correct answer.   (17)

1	What is the mass in grams of 5 moles of water; (SLO's Based Ch. # 01)						
	A	90g	B	36g	C	100g	D	18g
2	The reactant which is consumed earlier and gives least quantity of product is called;						
	A	Stoichimetric reactant	B	Excess reactant	C	Limiting reactant	D	Stoichiometry
3	The maximum number of electrons in a subshall for which $\ell = 3$ is; (SLO's Based Ch. # 02)						
	A	14	B	10	C	8	D	4
4	Splitting of spectral lines when atoms are subjected to strong electric field is called;						
	A	Zeeman effect	B	Stark effect	C	Photoelectric effect	D	Compton effect
5	The geometry of a molecule containing two sigma (δ) bonds and one lone pair of electrons in the valence shell of central atom is; (SLO's Based Ch. # 03)						
	A	Trigonal bipyramidal	B	Trigonal planar	C	Trigonal pyramid	D	Angular
6	In the formulation of N_2^+ from N_2. The electron is removed from;						
	A	δ^* Px orbital	B	δ Px orbital	C	π 2Py orbital	D	π^* 2Py orbital
7	A gas has certain volume at $10°C$. At what temperature, the volume of gas will be doubled; (SLO's Based Ch. # 04)						
	A	273 K	B	566 K	C	293 K	D	283 $°C$
8	Which of the following gases has the lowest density under room conditions;						
	A	CO	B	N_2	C	Ne	D	NH_3
9	The intermolecular forces present in Chloroform ($CHCl_3$) are;						
	A	Dipole-dipole forces	B	London dispersion forces	C	Ion-dipole forces	D	Hydrogen bonding
10	The boiling points of NH_3, H_2O and HF decrease in the order;						
	A	$HF>HN_3>H_2O$	B	$H_2O>NH_3>HF$	C	$H_2O>HF>NH_3$	D	$HF>H_2O>NH_3$
11	Sodium Chloride exists in Cubic and octahedral forms. This phenomenon is called;						
	A	Allotropy	B	Polymorphism	C	Anisotropy	D	Isomorphism
12	For a reaction $N_2 + 3H_2 \rightleftharpoons 2NH_3$.						
	A	$K_c = K_p$	B	$K_p = K_c$ RT	C	$K_p = K_c$ (RT)$^{-2}$	D	K_c (RT)$^{-1}$
13	If dry Citric acid crystals are placed on dry litmus paper. They will;						
	A	Turn yellow	B	Turn green	C	Turn red	D	Remain unchanged
14	The unit of the rate constant is the same as that of the rate of first in which order reaction;						
	A	First	B	Second	C	Third	D	Zero
15	5.6g KOH is dissolved per 250 Cm3. Molarity of resultant solution is;						
	A	0.1 M	B	0.2 M	C	0.3 M	D	0.4 M
16	Enthalpy of neutralization for any strong and with strong base is;						
	A	57.4 KJ mole^{-1}	B	57.4 Kcal mole^{-1}	C	57.4 KJ mole^{-1}	D	$-$ 57.4 Kcal mole^{-1}
17	The oxidation number of 'Cr' in $K_2Cr_2O_7$ is;						
	A	+ 14	B	+ 12	C	+ 6	D	+ 7

(The End)

Time allowed : 2:35 Minutes   Total Marks : 68

Note:- Answer any fourteen parts from Section 'B' and attempt any two questions from Section 'C' on the separately provided answer book. Write your answers neatly and legibly.

SECTION – B

Q:2-   Attempt any "FOURTEEN PARTS" from the followings. All parts carry equal marks.   (14 x 3 = 42)

i	How many covalent bonds are present in 16 grams of O_2?	ii	Actual yield is less than theoretical yield in a chemical reaction. Give reason.
iii	The e/m value for the positive rays is the maximum for hydrogen gas. Why?	iv	Define frequency, wave number and wavelength.
v	Write down any three differences between Sigma and Pi bonds.	vi	O2 is a paramagnetic substance. Justify in the light of Molecular Orbital theory.
vii	Corrosion is often accelerated where the coating on the body of a car has begun to crack. Interpret it.	viii	Why a solution of sugar is non conductor but that of table salt is a good conductor of electricity? (SLO's Based Ch. # 12)
ix	Justify that high value of specific heat of water is beneficial for humans. (SLO's Based Ch. # 11)	x	What is the difference between temperature and heat?
xi	Justify that CaO is basic oxide whereas Al_2O_3 is an amphoteric oxide.	xii	Define the term "water of crystallization". Also give four examples of it.
xiii	What is the difference among solution, colloid and suspension?	xiv	Why the reactions having lower energy of activation are comparatively faster? (SLO's Based Ch. # 09)
xv	What is the effect of a catalyst on, the rate of a reaction, the energy of activation and the equilibrium position of a reversible reaction?	xvi	High pressure and low temperature make the gases non-ideal. Justify it. (SLO's Based Ch. # 04)
xvii	How does viscosity and surface tension Change with temperature? Discuss the relation of intermolecular forces with these properties.	xviii	The solubility of NaCl is 5 x 10^{-3} M at 25°C. Calculate its K_{sp}. (SLO's Based Ch. # 07)
xix	Explain why the particles in solid Ice stick together and those of steam do not?	xx	Define, Anisotropy, Symmetry and Allotropy.

SECTION – C   26 Marks

Note:- Attempt any TWO questions. All questions carry equal marks.   (13 x 2 = 26)

Q:3-	(a) Calculate the energy of electron of a hydrogen atom in the orbit for which the value of n = 3.	(07)
	(b) Discuss Limiting and Non limiting reactant in detail.	(06)
Q:4-	(a) Define and derive the Graham's Law of effusion and diffusion. What are its practical applications?	(07)
	(b) Write down three difference between ionic and covalent solids.	(06)
Q:5-	(a) What is "Hydrolysis"? Discuss in detail, the behavior of each of the followings salts in the aqueous solutions (a) K_2CO_3 (b) NH_4Cl (c) $NaNO_3$ (SLO's Based Ch. # 08)	(07)
	(b) What is a Fuel cell? Describe the construction and working of Fuel cell, giving the reactions taking place at cathode and at anode.	(06)

(The   End)