

Chemistry

PAPER : PART - I

MARKS: 68

TIME : 2:40 Hours

Model Paper (AJK Syllabus)

INTERMEDIATE

(SUBJECTIVE PART)

SECTION - I

2- Write short answers of any eight parts. (2 x 8 = 16)

i	How the competing reactions decrease the efficiency of a reaction?	ii	Mg atom is twice heavier than that of carbon justify it.
iii	How molecular formula is related to empirical formula?	iv	What are Zeeman and Stark effects?
v	What type of informations are obtained from principal quantum number?	vi	The positive rays are also called canal rays. Give reason.
vii	How sigma and pi bonds are formed?	viii	What is "Resonance"? Give one example.
ix	Dipole moment of CS ₂ is Zero but that of CO is 0.12 D. Give reason.	x	What is "Lechatelier's principle"?
xi	Chemical equilibrium is dynamic in nature justify it.	xii	What qualitative information can you obtain from the magnitude of equilibrium constant?

3- Write short answers of any eight parts. (2 x 8 = 16)

i	Write Characteristics of plasma.	ii	What is Graham's Law of Diffusion? Give its mathematical expression.
iii	Justify that the volume of given mass of a gas becomes theoretically zero at -273.16°C.	iv	What are Ion dipole interactions?
v	Write four advantages of vacuum distillation process.	vi	What are crystallographic elements?
vii	Amorphous solids like glass is also called super cooled liquid. Give reason.	viii	Differentiate homogeneous and heterogeneous catalysis giving one example of each.
ix	A rate determining step is the slowest step, comment.	x	Why is the solution of ferric chloride acidic in nature?
xi	Write any four applications of buffers.	xii	Explain the term "leveling Effect".

4- Write short answers of any six parts. (2 x 6 = 12)

i	What is Molality of a solution? Give its formula.	ii	Justify that the sum of mole fractions of all the components is always equal to unity for any solution.
iii	What is the concept of ebullioscopy and cryoscopy constants?	iv	What are endothermic and exothermic reactions? Give one example of each.
v	Heat of neutralization of a strong acid and strong base is -57.4 KJ mole ⁻¹ . Why?	vi	Define chemical potential energy.
vii	Define Corrosion with example.	viii	Calculate oxidation number of "Mn" in KMnO ₄ .
ix	Lead accumulator is a rechargeable battery. Comment.		

SECTION - II

Note:- Attempt any three questions. (8 x 3 = 24)

5	(a)	Explain Excess and Limiting reagents in detail.	(04)
	(b)	Describe some properties of gases (any four).	(04)
6	(a)	Define hybridization. Explain. Sp hybridization giving example of Ethyne (CH ₃ -C≡CH).	(04)
	(b)	Describe following properties of crystalline solids. (i) Anisotropy (ii) Symmetry (iii) Isomorphism (iv) Polymorphism	(04)
7	(a)	Write postulates of Bohr's atomic model.	(04)
	(b)	The equilibrium constant K _c for the ammonia synthesis is 6.02 x 10 ² dm ⁶ mol ⁻² at 500°C. What is K _p for this reaction at this temperature? $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$ (g) (g) (g)	(04)
8	(a)	Describe about the factors affecting the rate of a reaction (any four).	(04)
	(b)	Calculate Lattice energy of an ionic compound by Born Haber cycle.	(04)
9	(a)	Explain Beckmann's method for the measurement of depression of freezing point.	(04)
	(b)	Describe the construction and working of Galvanic cell.	(04)

(The End)

Chemistry (OBJECTIVE PART)

PART – I

Model Paper (AJK Syllabus)
(INTERMEDIATE)**Chemistry**

(INTERMEDIATE)

(PART – I)
(OBJECTIVE PART)

Model Paper (AJK Syllabus)

Marks : 17

Minutes

Time : 20

Note:- Write your Roll No. in space provided. Over writing, cutting, using of lead pencil

will result in loss of marks. All questions are to be attempted.

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

(17)

1	The molar mass of H_2SO_4 is;							
	A	980g mole ⁻¹	B	98 g mole ⁻¹	C	98 a.m.u	D	198 a.m.u
2	The largest number of molecules is present in:							
	A	18 g of glucose	B	4 g of CH_4	C	34.2 g of glucose	D	15 g of Na_2CO_3
3	The velocity of light 'C' is equal to:							
	A	$3 \times 10^8 \text{ ms}^{-1}$	B	$300 \times 10^8 \text{ ms}^{-1}$	C	$6.579 \times 10^{14} \text{ s}^{-1}$	D	$456 \times 10^{-9} \text{ m}$
4	P^{3-} ion has the valence shell electronic configuration as.							
	A	$3S^2, 3P^6$	B	$3S^2, 3P^5$	C	$3S^2, 3P^3$	D	$3S^2, 3P^4$
5	Which one of the following molecule has a distorted geometry?							
	A	CH_4	B	SF_6	C	$S\ddot{F}_4$	D	BF_3
6	A molecule has two ion pairs and two bond pairs around the central atom it is expected to be:							
	A	V-shapes	B	Triangular	C	Linear	D	Tetrahedral
7	The pressure exerted by the molecules of non ideal gas at the walls of the vessel can be best calculated from:							
	A	Vander waal's equation	B	General gas equation	C	Graham's law of diffusion	D	All of these
8	The S.I unit of ideal gas constant 'R' is:							
	A	$8.314 \text{ JK}^{-1} \text{ mole}^{-1}$	B	$1.987 \text{ CalK}^{-1} \text{ mole}^{-1}$	C	$0.0821 \text{ L Jmole}^{-1} \text{ K}^{-1}$	D	$82.1 \text{ atmdm}^3\text{K}^{-1} \text{ mole}^{-1}$
9	The vapour pressure of Chloroform at 20°C is:							
	A	87 Torr	B	580 Torr	C	18 Torr	D	170 Torr
10	All of the following substances are crystalline except.							
	A	Carbon	B	Ice	C	Plastic	D	Sucrose
11	The reaction goes to forward direction when;							
	A	$Q_c > K_c$	B	$Q_c < K_c$	C	$Q_c = K_c$	D	None of these
12	The pH of a 0.005M aqueous solution of H_2SO_4 is;							
	A	0.005	B	2	C	1	D	0.01
13	Hydrolysis of urea takes place in the presence of the enzyme.							
	A	Invertase	B	Hydrolase	C	Urease	D	Glucokinase
14	The number of moles of solute dissolved per dm^3 of the solution called;							
	A	Molality	B	Mole fraction	C	Molarity	D	$\left(\frac{W}{W}\right)\%$
15	What are the enthalpies of all elements in their standard states?							
	A	Zero	B	Always negative	C	Unity	D	Always positive
16	The oxidation number of manganese in $KMnO_4$ is;							
	A	+3	B	+6	C	+7	D	-3
17	Oxidation number of oxygen as +2 is shown by which of the following compounds;							
	A	Cl_2O	B	F_2O	C	Na_2O_2	D	Na_2O

(The End)