

Roll No.

(To be filled in by the candidate)

Chemistry

Inter (Part-I)-A-2021

Time : 20 Minutes

Paper : I

Objective - (II) **506-21**

Marks : 17

Paper Code

6	4	8	3
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Note: - You have four choices for each objective type question as A, B, C and D. The choice which you think is correct; fill that circle in front of that question number in your answer book. Use marker or pen to fill the circles. Cutting or filling up two or more circles will result no mark.

Q.1	Questions	A	B	C	D
1.	Mathematical expression of Raoult's law is:	$p \propto x_1$	$\Delta p \propto x_2$	$\frac{\Delta p}{p} = x_2$	all of these
2.	For which system does the equilibrium constant K_c has units of (concentration) ⁻¹ ?	$N_{2(g)} + 3H_{2(g)} \rightleftharpoons 2NH_{3(g)}$	$H_{2(g)} + I_{2(g)} \rightleftharpoons 2HI_{(g)}$	$2NO_{2(g)} \rightleftharpoons N_2O_{4(g)}$	$2HF_{(g)} \rightleftharpoons H_{2(g)} + F_{2(g)}$
3.	The pH of $10^{-3} M$ of an aqueous solution of H_2SO_4 is:	3.0	2.7	2.0	1.5
4.	1 kilo calorie is equivalent to:	0.4184 J	4184 J	4184 KJ	4.18 J
5.	Most stable electronic configuration is of a/an:	Noble gas	Electronegative element	Alkali metal	Halogen
6.	Which one of given is a linear molecule?	H_2O	HCN	Cl_2O	C_2H_4
7.	Among the given e/m value is maximum for:	Oxygen	Nitrogen	Helium	Hydrogen
8.	Quantum number values for 2p orbitals are:	$n=2, l=0$	$n=1, l=2$	$n=2, l=1$	$n=1, l=0$
9.	Among the given H-Bonding is maximum in:	Alcohol	Benzene	Water	Diethyl ether
10.	In chloroform and acetone, how many chlorine atoms are responsible for hydrogen bonding?	1	2	3	4
11.	At what temperature does the gaseous state of any type of matter can't exist?	$-33^\circ C$	$273.15^\circ C$	$-273.15^\circ C$	$-237.15^\circ C$
12.	Density of an ideal gas can be calculated by using equation:	$PV = dRT$	$PM = dPV$	$d = \frac{RT}{MP}$	$PM = dRT$
13.	Solvent extraction is an equilibrium process and it is controlled by:	law of mass action	the amount of solvent used	distribution law	the amount of solute
14.	27g of Al reacts completely with how much mass of O_2 to produce Al_2O_3 .	8g of oxygen	16g of oxygen	32g of oxygen	24g of oxygen
15.	Isotopes differ in:	properties which depends upon mass	arrangement of electrons in orbital	chemical properties	the extent to which they may be effected in electromagnetic field
16.	If rate equation of a reaction is $2A + B \rightarrow$ product, its rate equation is, $rate = k[A]^2[B]$, and A is in large excess, the order of reaction is:	1	2	3	1.5
17.	Stronger the oxidizing agent, greater is the:	Oxidation potential	Reduction potential	Redox potential	emf of the cell

Chemistry

Paper : I

Roll No.

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(To be filled in by the candidate)

Inter (Part-I)-A-2021

Time : 2:40 Hours

Subjective **SWL-21**

Marks : 68

Note: Section I is compulsory. Attempt any 3 questions from Section II.

(SECTION-I)

2. Write short answers to any Eight parts. (8 x 2 = 16)
- Explain with reason N_2 and CO have the same number of electrons, protons and neutrons.
 - Why in experimental work one or more reactants is/are deliberately used in excess quantity?
 - Law of Conservation of Mass has to be obeyed during stoichiometric calculations. Explain.
 - Define Distribution Coefficient.
 - What is difference between partition and adsorption type chromatography?
 - Write quantitative definition of Charles's law.
 - Calculate the values of R (general gas constant) in SI system.
 - State Avogadro's law by giving example.
 - Non-ideal solutions do not obey Raoult's law. Explain with reason.
 - Explain with reason that the relative lowering of vapour pressure is independent of temperature.
 - Define Cryoscopic Constant.
 - What is Future Horizon of plasma?

3. Write short answers to any Eight parts. (8 x 2 = 16)

- How soaps perform their cleansing action?
- What are amorphous solids? Give examples.
- What is Anisotropy?
- Define Symmetry of Crystal.
- What is principal quantum number?
- Define Quantum Numbers.
- What is azimuthal quantum number?
- What is basic idea of Planck's quantum theory?
- Define Common Ion Effect with one example.
- Define Buffer Solutions.
- What is half-life period?
- Define Order of a Reaction.

4. Write short answers to any Six parts. (6 x 2 = 12)

- Write names of factors affecting electron affinity.
- How does Shielding effect affect ionization energy?
- Define Polar Covalent Bond giving one example.
- Give two examples of coordinate covalent bond.
- Define Enthalpy of atomization with one example.
- What is the first Law of Thermodynamics?
- Write reactions involved in extraction of Sodium in Down's Cell.
- Discuss in brief Standard Hydrogen Electrode.
- What is function of salt bridge?

(SECTION-II)

(Each question carries Eight (4+4=8) Marks)

5. (a) Calculate the number of grams of K_2SO_4 and water produced when 14g of KOH are reacted with excess of H_2SO_4 . Also calculate the number of molecules of water produced.
(b) What are Liquid Crystals? Give their uses in daily life.
6. (a) State and explain Charles's law, alongwith its experimental verification.
(b) Explain Atomic or Line spectrum.
7. (a) Define Co-ordinate Covalent Bond and explain with two suitable examples.
(b) Describe the measurement of enthalpy of a reaction by bomb calorimeter.
8. (a) $N_2(g)$ and $H_2(g)$ combine to give $NH_3(g)$. The value of K_c in this reaction is 6.0×10^{-2} at $500^\circ C$. Calculate the value of K_p .
(b) Explain Energy of Activation.
9. (a) What is Raoult's law? Give its three statements.
(b) Explain the term oxidation number with two examples.