CHEMISTRY (NEW COURSE)
GROUP FIRST
ACADEMIC SESSION : 2015 – 2017 TO 2017 – 2019

TIME: 20 MINUTES
MARKS: 17

OBJECTIVE

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. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

QUESTION NO. 1

1	The volume occupied by 1.4 g of N_2 at STP is
	(A) 2.24 dm³ (B) 22.4 dm³ (C) 1.12 dm³ (D) 112 cm³
2	27 g of Al will react completely with how much mass of O_2 to produce Al_2O_3
	(A) 8 g of oxygen (B) 16 g of oxygen (C) 32 g of oxygen (D) 24 g of oxygen
3	Insoluble particles can be separated from liquid by
	(A) Sublimation (B) Solvent extraction (C) Crystallization (D) Filtration
4	If absolute temperature of a gas is doubled and pressure is reduced to one half , the volume of gas will
	(A) Remain unchanged (B) Increase four times (C) Reduce to $\frac{1}{4}$ (D) Be doubled
5	Dipole-induced dipole forces are also called
	(A) London Dispersion Forces (B) Debye Forces (C) Hydrogen bonding (D) Huckel Forces
6	The molecules of CO_2 in dry ice form
	(A) Ionic crystals (B) Covalent crystals (C) Molecular crystals (D) Any type of crystals
7	Which of the hydrogen halides has the highest percentage of ionic character ?
	(A) HCl (B) HBr (C) HF (D) HI
8	Quantum number values for 2p orbitals are
	(A) $n=2$, $\ell=1$ (B) $n=1$, $\ell=2$ (C) $n=1$, $\ell=0$ (D) $n=2$, $\ell=0$
9	Splitting of spectral lines when atoms are subjected to strong electric field is called
	(A) Zeeman effect (B) Stark effect (C) Compton effect (D) Photoelectric effect
10	Geometry of SO_2 molecule is
	(A) Linear (B) Angular (C) Tetrahedral (D) Trigonal pyramidal
11	For the reaction : $NaOH + HCl \rightarrow NaCl + H_2O$, the change in enthalpy is called
	(A) Heat of reaction (B) Heat of formation (C) Heat of neutralization (D) Heat of combustion
12	The solubility product of AgCl is 2.0×10^{-10} mol^2 dm^{-6} .The maximum concentration of Ag^+ ions in the solution is
	(A) 2.0×10^{-10} mol dm⁻³ (B) 1.41×10^{-5} mol dm⁻³
	(C) 1.0×10^{-10} mol dm⁻³ (D) 4.0×10^{-20} mol dm⁻³
13	The values of Kw of water at 25 °C is
	(A) 0.11×10^{-14} (B) 0.30×10^{-14} (C) 1.0×10^{-14} (D) 7.5×10^{-14}
14	Which one of the following salt dissolves in water to form a solution with a pH greater than 7 ?
	(A) Na Cl (B) Cu SO₄ (C) Na_2CO_3 (D) NH_4Cl
15	18 g of glucose is dissolved in 90 g of water .The relative lowering of vapour pressure is equal to
	(A) $\frac{1}{5}$ (B) 5.1 (C) $\frac{1}{51}$ (D) 6
16	Stronger the oxidizing agent , greater is the
	(A) Oxidation potential (B) Reduction potential (C) Redox potential (D) E.M.F. of cell
17	If the rate equation of a reaction $2A + B \rightarrow$ products is , rate = k $[A]^2[B]$, and A is present in large excess , then order of reaction is
	(A) 1 (B) 2 (C) 3 (D) Zero

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	(A) 1 (B) 2 (C) 3 (D) Zero

PAPER CODE - 6482

(11ᵗʰ CLASS - 12018)

CHEMISTRY (NEW COURSE)
GROUP SECOND
ACADEMIC SESSION : 2015 – 2017 TO 2017 – 2019

DGK-G2-11-18
TIME: 20 MINUTES
MARKS: 17

OBJECTIVE

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QUESTION NO. 1

1	The number of atoms present in 0.5 mole of Na is
	(A) 1.0×10^{23} (B) 6.02×10^{23} (C) 2.04×10^{23} (D) 3.01×10^{23}
2	The mass of one mole of electrons is
	(A) 1.008 mg (B) 0.55 mg (C) 0.184 mg (D) 1.673 mg
3	Solvent extraction is an equilibrium process and it is controlled by
	(A) law of mass action (B) the amount of solvent (C) distribution law (D) the amount of solute
4	Equal masses of methane and oxygen are mixed in an empty container at 25 °C. The fraction of total pressure exerted by oxygen is
	(A) $\frac{1}{3}$ (B) $\frac{8}{9}$ (C) $\frac{1}{9}$ (D) $\frac{16}{17}$
5	Heat change for one mole of a solid during converting it into liquid is called
	(A) Molar heat of fusion (B) Molar heat of vaporization
	(C) Molar heat of sublimation (D) Enthalpy change
6	Which of the following is a pseudo solid?
	(A) CaF_2 (B) Glass (C) NaCl (D) Diamond
7	The limiting line of Balmer series lies in
	(A) Visible region (B) U.V. region (C) I.R. region (D) X-rays region
8	What is the value of $(n + \ell)$ for the 3d sub-shell?
	(A) 3 (B) 4 (C) 5 (D) 6
9	Which of the following molecules has zero dipole moment?
	(A) NH_3 (B) $CHCl_3$ (C) H_2O (D) BF_3
10	The amount of energy released by absorbing an electron in the valence shell of an atom is
	(A) Ionization energy (B) Electron affinity (C) Electro negativity (D) Bond energy
11	The number of fundamental ways of transferring energy into or out of system is
	(A) One (B) Two (C) Three (D) Four
12	When Kc value of a reaction is very small, the equilibrium position lies to
	(A) Left (B) Right (C) May be left or right (D) Can not be predicted
13	The pH of 10^{-3} mol dm^{-3} of an aqueous solution of H_2SO_4 is
	(A) 3.0 (B) 2.7 (C) 2.0 (D) 1.5
14	Molarity of pure water is
	(A) 1 (B) 18 (C) 55.5 (D) 6
15	The molal boiling point constant is the ratio of the elevation in boiling point to
	(A) Molarity (B) Molality (C) Mole fraction of solvent (D) Mole fraction of solute
16	Oxidation number of " Cr " in $K_2Cr_2O_7$ is
	(A) +2 (B) +4 (C) +6 (D) +8
17	Hydrolysis of Tertiary butyl bromide has order of reaction
	(A) First (B) Pseudo first (C) Second (D) Third

QUESTION NO. 2   Write short answers any Eight (8) questions of the following   16

1	Write importance of combustion analysis.
2	How many formula units are there in 100 g of KCl_3
3	Many chemical reactions taking place in our surrounding involve limiting reactants, give reason
4	Define sublimation.
5	How will you decolonize the undesired colour in a product ?
6	SO_2 is comparatively non ideal at 273K but behave ideally at 327 °C , give reason.
7	Write two applications of Dalton's Law of Partial Pressure.
8	Derive Avogadro's Law from KMT.
9	Define Buffer Capacity.
10	What is ionization constant of acids
11	What is effect of temperature on following system at equilibrium $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$ $\Delta H = -194.5$ kJ/mol
12	Define law of mass action .

QUESTION NO. 3   Write short answers any Eight (8) questions of the following   16

1	How do earthen ware vessels keep water cool ?
2	Why are the vapour pressure of solids far less than those of liquids ?
3	Why does ice float on water ?
4	Why are the ionic crystals highly brittle ?
5	Differentiate between ionization energy and electron affinity.
6	Define electro negativity, and how its difference between two atoms affects bond strength ?
7	How does NF_3 and BF_3 have different structural formulae although both have same type of molecular formula?
8	Define dipole moment and write the S.I. units of dipole moment .
9	What is thermo-chemical equation? Give its two examples.
10	State that burning of candle is spontaneous process.
11	Justify that the total volume of solution by mixing 100cm^3 of H_2O with 100 cm^3 of alcohol may not be equal to 200 cm^3 .
12	Justify that one molal solution of urea in H_2O is dilute as compared to one molar solution of urea in H_2O but the number of particles of solute are same?

QUESTION NO. 4   Write short answers any Six (6) questions of the following   12

1	Why are positive rays also called canal rays ? Give its reason.
2	Differentiate between orbit and orbital.
3	State Pauli's Exclusion principle and Hund's rule.
4	Give two importance of Moseley's law.
5	Differentiate between primary cells and secondary cells with two examples.
6	Voltaic cell is reversible cell. Justify it.
7	Define electrode potential and standard electrode potential.
8	Define order of reaction and velocity constant
9	What is heterogeneous catalysis ? Give two examples.

SECTION-II

Note: Attempt any Three questions from this section   8 x 3 = 24

5-(A)	A sample of liquid consisting of carbon, hydrogen and oxygen was subjected to combustion analysis. 0.5439 g of the compound gave 1.039 g of CO_2 , 0.6369 g of water. Determine the empirical formula of the compound.
(B)	Define liquid crystals ; write down three uses of liquid crystals.
6-(A)	State and explain Graham's law of diffusion. Give its experimental verification.
(B)	What are Quantum Number's. Explain Azimuthal Quantum Number.
7-(A)	How will you describe paramagnetic character of O_2 molecule on the bases of molecular orbital theory?
(B)	Define the following with one example (i) System (ii) Surrounding (iii) State function (iv) Endothermic reaction
8-(A)	What are buffer solutions ? Derive Henderson's equation for finding pH of a buffer.
(B)	Describe the electrolysis of aqueous solution of sodium chloride.
9-(A)	The vapour pressure of water at 30 °C is 28.4 torr. Calculate the vapour pressure of a solution containing 70 g of cane sugar ($C_{12}H_{22}O_{11}$) in 1000 g of water at same temperature. Also , calculate the lowering of vapour pressure.
(B)	Give names of different types of methods for determining order of a reaction and explain half-life method.