DGK

PAPER CODE - 6481

11th CLASS – 12019

CHEMISTRY (NEW COURSE)
GROUP FIRST
ACADEMIC SESSION : 2015 - 2017 TO 2018 – 2020

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 pressure of vapours maintain in ionization chamber of mass spectrometer during isotopic analysis is
(A) 10^{-5} torr (B) 10^{-7} torr (C) 10^{-9} torr (D) 10^{-11} torr

2 Volume occupied by one mole of gas at standard temperature and pressure is
(A) 54 dm^3 (B) 22.414 dm^3 (C) 2.24 dm^3 (D) 2.4 dm^3

3 Direct conversion of solid into its vapour is called
(A) Crystallization (B) Sublimation (C) Vapourization (D) Distribution

4 SI units of pressure is
(A) mmHg (B) atm (C) pound per square inch (D) Nm^{-2}

5 Deviation of gas from ideal behaviour is maximum at
(A) -10C° and 5.0 atm (B) -10C° and 2.0 atm (C) 100C° and 2.0 atm (D) 0C° and 2.0 atm

6 Acetone and chloroform are soluble in each other due to
(A) Intermolecular H-bonding (B) Ion dipole interaction
(C) Instantaneous dipole (D) London dispersion forces

7 The crystals of diamond is
(A) Ionic (B) Covalent (C) Molecular (D) Metallic

8 Lyman series occur in
(A) Visible region (B) U.V region (C) I.R. region (D) Micro-wave region

9 Orbitals having same energy are called
(A) Hybrid orbitals (B) Valence orbitals (C) Degenerate orbitals (D) D-orbital

10 Which of the following species has unpaired electrons in antibonding molecular orbitals
(A) O_2^{2+} (B) N_2^{2-} (C) B_2 (D) F_2

11 One of the following molecule is polar in nature
(A) CH_4 (B) CO_2 (C) SO_2 (D) CCl_4

12 Calorie is equivalent to
(A) 0.4184 j (B) 41.84 j (C) 4.184 j (D) 418.4 j

13 The pH of a solution is 9 ,the solution is
(A) Weakly acidic (B) Weakly basic (C) Strongly acidic (D) strongly basic

14 Molarity of pure water is
(A) 1 (B) 18 (C) 55.5 (D) 6

15 The salt when dissolved in water form a solution with pH greater than 7 is
(A) $CuSO_4$ (B) NaCl (C) NH_4Cl (D) Na_2CO_3

16 If the salt bridge is not used between two half cells then the voltage
(A) Decrease rapidly (B) Decrease slowly (C) Does not change (D) Drops to zero

17 In zero order reaction, the rate is independent of
(A) Temperature of reaction (B) Concentration of reactants (C) Concentration of products (D) Pressure

CHEMISTRY (NEW COURSE)
GROUP FIRST SUBJECTIVE TIME : 2:40 HOURS
ACADEMIC SESSION : 2015 – 2017 TO 2018 – 2020 MARKS : 68

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SECTION-I

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

1	What are monoisotopic elements ? Give name and symbol of such an element.
2	What is molecular ion ? Write formulas of any two of these ions
3	Define Avogadro's number .give its numerical values.
4	Write down four steps for complete quantitative determination of a sample of a substance.
5	State distribution law.
6	What is critical temperature of gas? Write name and formula of a gas whose critical temperature is above room temperature.
7	Describe two causes of deviation of real gas from ideal behaviour.
8	What is absolute zero? Show it by drawing a graph between volume and temperature.
9	State Graham's law of effusion. Give its equation.
10	What is upper consulate temperature? Give names of two liquids which are partially miscible with each other.
11	What is meant by a hydrate ? Give formulas of any two hydrates.
12	Why heat of hydration of Li^+ is greater than that of Cs^+ ?

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

1	Boiling points of halogens increase going down the group .Give reason
2	Earthenware vessels keep the water cool. Explain
3	Why do the ionic solids not conduct electricity in solid state ?
4	Define order of reaction and specific rate constant
5	Define transition temperature. Give one example.
6	Write down any two properties of neutron.
7	Explain atomic spectrum with one example.
8	Mention any two defects in Rutherford atomic model.
9	Define $(n+\ell)$ rule.
10	Discuss the effect of common ion on the solubility of sparingly soluble salt with one example.
11	How is direction of reaction predicted by knowing its Kc value?
12	Explain the effect of surface area on the rate of a chemical reaction with one example.

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

1	Differentiate between bonding molecular orbital and anti-bonding molecular orbital.
2	Why polar bond is stronger than non-polar bond?
3	Why abnormality of bond length and bond strength in HI is less prominent than that of HCl.
4	Why atomic radii cannot be measured precisely?
5	Justify that heat of formation of compound is the sum of all the other enthalpies.
6	Describe Standard Enthalpy of solution with example.
7	How impure 'Cu' is purified by electrolysis?
8	How feasibility of reaction can be predicted from electrochemical series?
9	Write the reactions involved in alkaline battery.

SECTION-II

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

Q.5 (A)	Define stoichiometry. Give its assumptions. Mention two important laws which help to perform the stoichiometric calculation.
(B)	Explain H-bonding .discuss any three applications of H-bonding
Q.6 (A)	Calculate the density of $CH_{4(g)}$ at 0 °C and one atmospheric pressure.
(B)	Write down the postulates of Bohr's atomic model.
Q.7 (A)	Draw the shape of O_2 molecules according to molecular orbital theory.
(B)	Define spontaneous and non-spontaneous process. Give two examples of each.
Q. 8(A)	The solubility of PbF_2 at 25 °C is 0.64 g/dm^{+3}. Calculate K_{sp} of PbF_2 Molar mass of PbF_2 = 245.2 g/mol.
(B)	Define enzyme. Mention three characteristics of enzyme catalysis.
Q.9 (A)	State Raoult's Law in three different ways.
(B)	Describe the construction and working of Galvanic cell .

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CHEMISTRY (NEW COURSE)
GROUP SECOND
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11th CLASS – 12019
OBJECTIVE

TIME: 20 MINUTES
MARKS: 17

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 number of moles of CO_2 that contains 0.5 mole of Oxygen is
(A) 0.25 (B) 0.50 (C) 1.0 (D) 1.5

2 The mass of one mole of electrons in milligrams is
(A) 1.008 (B) 0.5500 (C) 0.1840 (D) 1.673

3 Gooch crucible is made of
(A) Glass (B) Paper (C) Teflon (D) Porcelain

4 The highest temperature at which a substance can exist as liquid state at its critical pressure is
(A) Absolute zero (B) Consulate temperature (C) Critical temperature (D) Transition temperature

5 The volume occupied by 1.4g N_2 at STP is
(A) 2.24 dm^3 (B) 22.4 dm^3 (C) 1.12 dm^3 (D) 112 cm^3

6 The molecules of CO_2 in dry ice forms the crystal of type
(A) Ionic (B) Covalent (C) Molecular (D) Metallic

7 Transition temperature of S_8 (monoclinic) $\rightleftharpoons$ S_8 (Rhombic) is
(A) 13.2 °C (B) 95.5 °C (C) 128 °C (D) 110 °C

8 In the ground state the electrons in atom are present.
(A)Nearest to its nucleus (B) In its nucleus (C) In second shell (D) In last shell

9 Bohr's Atomic Model is contradicted by
(A) Plank's Quantum theory (B) Heisenberg's uncertainty principle
(C) Dual nature of matter (D) Rutherford's Atomic Model

10 Following halide has highest ionic character
(A) HBr (B) HCl (C) HF (D) HI

11 The carbon atom in C_2H_4 uses following orbitals for making covalent bonds
(A) Sp^3 (B) Sp^2 (C) Sp (D) dsp^2

12 One thermal calorie is equivalent to
(A) 0.418 J (B) 4.18 J (C) 41.8 J (D) 418 J

13 Consider following reaction as equilibrium , $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$ $\Delta H = -188 Kj^{-1}$
The correct statement about above reaction is
(A) Value of Kp decreases with increase in temperature
(B) Value of Kp decreases with increase in pressure
(C) Adding catalyst (V_2O_5) increase yield SO_3 (D) Value of Kp is equal to Value of Kc

14 The molal boiling point constant is the ratio of elevation in boiling point to
(A) Molarity (B) Molality (C) Mole fraction (D) Percentage composition

15 An aqueous solution of ethanol (C_2H_6O) in water has vapour pressure.
(A) Equal to that of ethanol (B) Equal to that of water
(C) More than that of water (D) Less than that of water

16 The standard electrode potential (in volt) of SHE is taken as
(A) 0.00 (B) 1.00 (C) 10.0 (D) 100

17 In zero order reaction the rate of reaction is independent of
(A) Temperature of reaction mixture (B) Concentration of reactants
(C) Concentration of products (D) Pressure on reaction mixture

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CHEMISTRY (NEW COURSE) **SUBJECTIVE** TIME: 2:40 HOURS

GROUP SECOND **SECTION-I** MARKS: 68

ACADEMIC SESSION : 2015 – 2017 TO 2018 –2020

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

1	Why experimental yield is less than that of theoretical yield?.
2	Define molecular formula. How it is related with empirical formula.
3	Law of conservation of mass has to be obeyed during stoichiometric calculation .Justify
4	How coloured impurities are removed from a crystalline substance?
5	Give two uses of chromatography.
6	Why pilots feel uncomfortable breathing at higher altitude?
7	State Graham's law of diffusion along with mathematical form.
8	Give two applications of Plasma.
9	Why lighter gases diffuse more rapidly as compare to heavier gases?
10	Why Molarity is temperature dependent but Molality is temperature independent.
11	Define colligative properties. Why they are so called?
12	Give two applications of colligative properties.

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

1	Why heat of sublimation is greater than heat of vaporization ?
2	Why did the boiling point of noble gases increase within a group ?
3	Define amorphous solids and give two examples.
4	Heat of sublimation of iodine is very high. Justify.
5	How will you prove that cathode rays possess momentum?
6	Prove that $E = hc\bar{\nu}$
7	Why boiling point of water varies from sea level to Murree Hills?
8	How do you come to know that velocity of electron in higher orbit are less than in lower orbit?
9	Give equilibrium constant expression (Kc) for $N_{2(g)} + 3H_{2(g)} \rightleftharpoons 2NH_{3(g)}$
10	Give optimum conditions for synthesis of Ammonia gas by Haber's process.
11	The order of reaction may be in fraction. Explain.
12	A particular catalyst is suitable for a particular reaction. How do you explain ?

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

1	Define coordinate covalent bond with an example.
2	Differentiate between polar and non polar covalent bond.
3	Define bond order. Calculate the bond order of Nitrogen molecule.
4	H_2O is an angular molecule where as CO_2 is linear. Why?
5	State first law of thermodynamics Give its mathematical form.
6	Why is it necessary to mention the physical state of reactants and products in a thermo-chemical equation?
7	Define electrochemistry.
8	Calculate oxidation number of chromium in $K_2Cr_2O_7$ and K_2CrO_4
9	Na and K can displace Hydrogen from dilute acid but Pt and Cu cannot. Justify it

SECTION-II

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

Q.5 -(A)	What is a limiting reactant ? How does it control the quantity of the product formed ? Explain with examples.
(B)	Write four properties of covalent solids.
Q.6 -(A)	Calculate the mass of 1dm^3 of NH_3 gas at 30 °C and 1000 mmHg pressure, considering that NH_3 is behaving ideally.
(B)	How J. J. Thomson determine the e/m value of electron by discharge tube?
Q.7 -(A)	Define hybridization. Explain sp^2 hybridization with one example ?
(B)	How the enthalpy of combustion is measured by bomb calorimeter?
Q.8 -(A)	The solubility of PbF_2 at 25 °C is 0.64 gm^{-3}.Calculate Ksp of PbF_2 (Molar mass of PbF_2 = 245.2)
(B)	Discuss any four physical methods to determine rate of a reaction..
Q.9 -(A)	Write note on (i) Hydration (ii) Hydrolysis
(B)	Describe the construction and working of standard Hydrogen electrode.