Roll No. of Candidate : _____

CHEMISTRY **Intermediate Part-I , Class 11th (1stA 323- IV)** **Paper : I** **Group – I**

Time: 20 Minutes **OBJECTIVE** **Code : 6487** Guj-11-1-23 **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.

1. 1 - The molar volume of CO_2 is maximum at

(A) STP (B) 127°C and 1 atm (C) 0°C and 2 atm (D) 273°C and 2 atm

2 - Molarity of pure water is

(A) 1 (B) 18 (C) 55.5 (D) 6

3 - The rate of reaction

(A) increases as the reaction proceeds (B) decreases as the reaction proceeds

(C) remains same as the reaction proceeds (D) may increase or decrease as reaction proceeds

4 - Water boils at 98°C at external pressure of

(A) 700 torr (B) 765 torr (C) 800 torr (D) 900 torr

5 - Stronger is the oxidizing agent, greater is the

(A) oxidation potential (B) reduction potential

(C) redox potential (D) emf of the cell

6 - Catalyst used in conversion of SO_2 into SO_3 in contact process is

(A) MgO (B) Al_2O_3 (C) SiO_2 (D) V_2O_5

7 - Quantum number values for 2P orbital are

(A) $n=2, \ell=1$ (B) $n=1, \ell=2$ (C) $n=1, \ell=0$ (D) $n=2, \ell=0$

8 - The change in heat energy of a chemical reaction at constant temperature and pressure is called

(A) enthalpy change (B) heat of sublimation

(C) bond energy (D) internal energy change

9 - Oxidation number of Fluorine in OF_2 is

(A) –1 (B) –2 (C) +2 (D) +1

10 - Gooch crucible is made up of

(A) porcelain (B) silver (C) iron (D) glass

11 - Mass of one mole of electrons is

(A) 1.008 mg (B) 0.55 mg (C) 0.184 mg (D) 1.673 mg

12 - The partial pressure of Oxygen in air is

(A) 116 torr (B) 159 torr (C) 180 torr (D) 190 torr

13 - Calorie is equivalent to

(A) 0.4184 J (B) 41.84 J (C) 4.184 J (D) 418.4 J

14 - The pH of 10^{-3} moles/dm^3 of an aquous solution of H_2SO_4 is

(A) 3.0 (B) 2.7 (C) 2.0 (D) 1.5

15 - The number of bonds in Nitrogen molecule is

(A) one Sigma and One Pi (B) One Sigma and Two Pi

(C) Three Sigma only (D) Two Sigma one Pi

16 - Ionic solids are characterized by

(A) low melting points (B) good conductivity in solid state

(C) high vapour pressure (D) solubility in polar solvents

17 - Nickel has isotopes

(A) 2 (B) 3 (C) 4 (D) 5

CHEMISTRY | Intermediate Part-I , Class 11th (1stA 323) | Paper : I | Group – I

Time: 2:40 Hours | SUBJECTIVE Gujj-11-1-23 | Marks: 68

Note: Section-I is compulsory. Attempt any THREE (3) questions from Section-II.

SECTION – I

2. Write short answers to any EIGHT questions. **(2 x 8 = 16)**

i - Calculate the moles of Cl atoms in 0.822 g of $C_2H_4Cl_2$.
ii - What is the difference between gram atom and gram ion?
iii - No individual neon atom has a mass of 20.18 amu. Why?
iv - How does the respiration process involve Dalton's law of partial pressures?
v - Give the quantitative definition of Charles's law.
vi - Where is plasma found?
vii - What is Moseley's law? Give its significance.
viii - Write down the electronic configuration of $_{29}Cu$ and $_{19}K$.
ix - The velocities of electrons in higher orbits are less than those in lower orbits of hydrogen atom. Give the reason.
x - Define standard enthalpy of combustion. Give an example.
xi - What is meant by state function? Give two examples.
xii - Define exothermic reaction. Give an example.

3. Write short answers to any EIGHT questions. **(2 x 8 = 16)**

i - Define water of crystallization. Give example.
ii - How do you justify that the boiling point of one molal urea solution is 100.52° C but the boiling point of two molal urea solution is less than 101.04° C?
iii - Give two statements of Raoults law.
iv - Differentiate between fast step and the rate determining step.
v - What are enzymes? Give an example.
vi - The reaction happens due to collisions among the molecules but all the collisions are not fruitful. Justify it.
vii - How does a Gooch crucible increases the rate of filtration?
viii - Give the main characteristics of the solvent used for crystallization.
ix - What is ether extraction?
x - Define polymorphism. Give example.
xi - Hydrogen bonding is present in chloroform and acetone. Justify it.
xii - How liquid crystals can act as temperature sensors?

4. Write short answers to any SIX questions. **(2 x 6 = 12)**

i - Atomic radius decreases from left to right in a period, justify.
ii - Define electron affinity, give one example.
iii - How the criteria of electronegativity helps us to understand the nature of bond?
iv - What is buffer capacity?
v - Value of pK_a and pK_b are related to strength of acid and bases. Justify it.
vi - Define solubility product with an example.
vii - Differentiate between electrolytic and galvanic cell.
viii - What is electrolysis? Give an example.
ix - How anodized aluminium is prepared in an electrolytic cell?

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HEMISTRY **Intermediate Part-I , Class 11th (1stA 323- III)** **Paper : I** **Group – II**

Time: 20 Minutes **OBJECTIVE** **Code : 6486** Guj-11-2-23 **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.

1. 1 - In zero order reaction, the rate is independent of
(A) temperature of reaction (B) concentration of reactants
(C) concentration of products (D) none of these

2 - 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

3 - If a strip of Cu metal is placed in a solution of $FeSO_4$
(A) Cu will be deposited (B) Fe is precipitated out
(C) Cu and Fe both dissolve (D) no reaction takes place

4 - Calori is equal to
(A) 0.4184 J (B) 41.84 J (C) 4.184 J (D) 418.4 J

5 - The oxidation No. of Nitrogen in HNO_3 is
(A) +3 (B) –3 (C) –5 (D) +5

6 - The change in heat energy of a chemical reaction at constant temperature and pressure is called
(A) enthalpy change (B) heat of sublimation
(C) bond energy (D) internal energy change

7 - An aqueous solution of ethanol in water may have vapour pressure
(A) equal to that of water (B) equal to that of ethanol
(C) more than that of water (D) less than that of water

8 - Feeling uncomfortable breathing in unpressurized cabin is due to
(A) high pressure of CO_2 (B) low pressure of CO_2
(C) low pressure of O_2 (D) high pressure of O_2

9 - The value of pH of pure water at 25° C is
(A) 14 (B) 7 (C) 1×10^{-14} (D) 1×10^{14}

10 - Pressure remaining constant, at which temperature the volume of a gas will become twice of what it is at 0° C
(A) 546° C (B) 200° C (C) 546 K (D) 273 K

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

12 - During the process of crystallization the hot saturated solution
(A) is cooled very slowly to get large size crystals
(B) is cooled at a moderate rate to get medium size crystals
(C) is evaporated to get the crystals of the product
(D) is mixed with immisible to get the pure crystals of the product

13 - When 6 d orbital is complete, the entering electron goes in to
(A) 7 f (B) 7 p (C) 7 s (D) 7 d

14 - 27 g of Al will react 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

15 - Diamond is a bad conductor because
(A) it has a tight structure
(B) there are no free electrons present in the crystal of diamond to conduct electricity
(C) it has a heigh density
(D) is transparent to light

16 - The mass of one mole of electron is
(A) 1.008 mg (B) 0.55 mg (C) 0.184 mg (D) 1.673 mg

17 - Liquid Hydrocarbon is
(A) Methane (B) Pentane (C) Hexane (D) Propane

ll No. of Candidate : _____

HEMISTRY **Intermediate Part-I , Class 11th (1stA 323- III)** **Paper : I** **Group – II**

Time: 20 Minutes **OBJECTIVE** **Code : 6486** Guj-11-2-23 **Marks: 17**

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CHEMISTRY **Intermediate Part-I , Class 11th (1stA 323- I)** **Paper : I** **Group – II**

Time: 2:40 Hours **SUBJECTIVE** Guj-11-2-23 **Marks: 68**

Note: Section-I is compulsory. Attempt any THREE (3) questions from Section-II.

SECTION – I

2. Write short answers to any EIGHT questions. **(2 x 8 = 16)**

i - What is the significance of John Dalton's work about atom?
ii - Define molar volume, give an example.
iii - How many moles are present in 18 g of H_2O?
iv - What is effect of pressure and heat on the behaviour of gases?
v - Give the S.I units of R.
vi - State Avogadro's law and give an example.
vii - Define frequency, give its relationship with wavelength.
viii - Differentiate between continuous and line spectrum.
ix - How neutron was discovered?
x - Distinguish between Exothermic and Endothermic reactions.
xi - Show how change in internal energy is related to q_v?
xii - What do you know about standard enthalpy of neutralization?

3. Write short answers to any EIGHT questions. **(2 x 8 = 16)**

i - Define molarity and molar solution.
ii - What are discontinuous solubility curves?
iii - Define Hydrates with one example.
iv - What is meant by activation of a catalyst?
v - Draw lock and key model of enzyme catalysis.
vi - How light affects rate of reaction?
vii - What is sintered glass crucible? What is its advantage?
viii - How fluted filter paper can be prepared?
ix - Write down any two uses of chromatography.
x - Define dipole-dipole forces. Give one example.
xi - Define hydrogen bonding. Give one example.
xii - What is meant by Anisotropy? Give one example.

4. Write short answers to any SIX questions. **(2 x 6 = 12)**

i - Define bond order and what is bond order of O_2^{2+}
ii - Why MOT is superior to UBT?
iii - Differentiate between polar and nonpolar covalent bonds with examples.
iv - How ammonia is synthesized by Haber's process? Also give the optimum conditions for reaction.
v - Give the two applications of the solubility product.
vi - The change of temperature disturbs both the equilibrium position and the equilibrium constant of a reaction. Explain with reason.
vii - What is fuelcell and where it is used?
viii - Write down two applications of electrochemical series.
ix - What is SHE? Give its potential value.

(Turn Over)

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SECTION – II

Note: Attempt any THREE (3) questions.

5. (a) Explain combustion analysis with diagram and write formulas for percentage of Carbon, Hydrogen and Oxygen. (2+1+1 =4)

   (b) Calculate the mass of 1 dm^3 of NH_3 gas at 30°C and 1000 mm Hg pressure, considering that NH_3 is behaving ideally. (4)

6. (a) What are London forces? Explain factors affecting London forces. (4)

   (b) State first law of thermodynamics. Also prove that $\Delta E = q_v$ (4)

7. (a) Describe Millikan's Oil Drop Method for the measurement of charge on an electron. (4)

   (b) The solubility product of $Ca(OH)_2$ is 6.5×10^{-6}. Calculate the solubility of $Ca(OH)_2$. (4)

8. (a) Define atomic orbital hybridization. Explain SP^2 hybridization by giving example of BF_3. (4)

   (b) Define electrochemical series and give any three applications of it. (4)

9. (a) Discuss in detail any two examples of solutions of partially miscible liquid. (4)

   (b) Differentiate between homogeneous catalysis and heterogeneous catalysis with one example in each. (4)