

FACULTY SELECTION TEST
PRE-FOUNDATION
CHEMISTRY
SAMPLE PAPER

Time: 90 mins.

Max. Marks: 240

GENERAL INSTRUCTIONS

1. Write your Name in the Space Provided in the Bottom of this Booklet.
2. The question paper consists of '60' objective type questions.
3. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.
4. Each correct answer carries **4 marks** and each wrong answer **(– 1) Mark**.
5. Use **Black or Blue Ball Point Pen** only for filling particulars.
6. Use of Blank Papers, Clip Boards, Calculator, Log Table, Slide Rule and Mobile or any electronic gadgets in any form is not allowed.
7. In case of any dispute, the answer filled in the OMR sheet available with the institute shall be final.
8. After completion submit the Question Paper back along with the Answer Sheet.

Name: _____

- Q.1** The atomic number of Na is 11 and Cl, 17. Na and Cl combine together forming NaCl. In this reaction-
- (1) Na is oxidized (2) Cl is reduced
(3) Na is reduced (4) sodium is oxidized and chlorine reduced
- Q.2** The boiling point of hydrogen fluoride (HF) is high. This is due to the presence of -
- (1) an ionic bond (2) a covalent bond
(3) a hydrogen bond (4) a coordinate covalent bond
- Q.3** An atom A has four electrons in its outermost shell. The formula of its hydride is -
- (1) AH (2) AH₄ (3) AH₃ (4) AH₂
- Q.4** Carbon tetrachloride is -
- (1) soluble in water (2) less soluble in water
(3) not soluble in water (4) highly soluble in water
- Q.5** Which of the following compounds is not used as a fertilizer ?
- (1) NH₄NO₃ (2) Ca₃(PO₄)₂ (3) (NH₄)₂SO₄ (4) HNO₃
- Q.6** The purest form of C is -
- (1) diamond (2) wood charcoal (3) coal (4) coke
- Q.7** Which of the following forms of C absorbs colour ?
- (1) wood (2) coal (3) bone charcoal (4) coke
- Q.8** When CO₂ is passed through water containing blue litmus, the resultant solution is -
- (1) red (2) blue (3) green (4) milky
- Q.9** In which of the following processes is oxygen released into air
- (1) photosynthesis (2) combustion of fuels
(3) rusting (4) respiration
- Q.10** Water glass is -
- (1) glass particles dispersed in water (2) sodium silicate
(3) aluminium silicate (4) powdered glass
- Q.11** Which of the following properties is different for solids, liquids and gases ?
- (1) Movement of molecules (2) Particle size of the substance
(3) Mass of the substance (4) Energy exchanges



- Q.22** Which of the following species are isoelectronic ?
 (1) Cl^- and Br^- (2) Na^+ and Mg^{++} (3) Ar and Ne (4) Mg^{++} and Ca^{++}
- Q.23** An element has n neutrons and p protons. Therefore, its atomic weight will be-
 (1) $n - p$ (2) $p - n$ (3) $n + p$ (4) n/p
- Q.24** Water is liquid because its molecule possesses -
 (1) an ionic bond (2) a coordinate covalent bond
 (3) a hydrogen bond (4) a covalent bond
- Q.25** Two atoms of A form a bond with each other. The nature of the bond would be -
 (1) ionic (2) covalent (3) coordinate covalent (4) none of the above
- Q.26** All molecules in the following set are allotropes of carbon -
 (1) Charcoal, lead, coke (2) Galena, glassy carbon, graphite
 (3) Fullerene, graphite, diamond (4) Charcoal, wood, soot
- Q.27** The ratio of σ and π -bonds in benzene is -
 (1) 2 (2) 6 (3) 4 (4) 8
- Q.28** A molecule of N_2 has -
 (1) a single bond (2) a double bond
 (3) a triple bond (4) a coordinate covalent bond
- Q.29** The NH_3 molecule has -
 (1) no lone pair (2) one lone pair (3) two lone pairs (4) three lone pairs
- Q.30** A water molecule has -
 (1) no lone pairs (2) one lone pair (3) two lone pairs (4) three lone pairs
- Q.31** Which of the following oxides of nitrogen is known as laughing gas ?
 (1) N_2O (2) NO (3) N_2O_5 (4) NO_2
- Q.32** Two elements, X and Y, have electronic configurations, $X=1s^2, 2s^2 2p^6, 3s^1$ and $Y = 1s^2, 2s^2 2p^6 3s^2$. Which of the following statements is correct ?
 (1) X is an alkaline earth metal and Y is an alkali metal
 (2) X and Y are the electronic configurations of different elements
 (3) The ionization potential of Y is less than that of X
 (4) Y is an excited state of X.



- Q.33** In Lothar Meyer's curve, the peaks are occupied by -
 (1) alkali metals (2) halogens (3) alkaline earth metals(4) inert gases
- Q.34** Which of the following has the smallest size ?
 (1) Cl (2) Cl⁻ (3) Br (4) Br⁻
- Q. 35** The pair of compounds which cannot exist together in solution is -
 (1) NaHCO₃ and NaOH (2) Na₂CO₃ and NaHCO₃
 (3) Na₂CO₃ and NaOH (4) NaHCO₃ and NaCl
- Q.36** Wine contains-
 (1) CH₃OH (2) C₆H₅OH (3) C₂H₅OH (4) CH₃COOH
- Q.37** Which of the following is a compound?
 (1) Iodine (2) Sand (3) Milk (4) Water
- Q.38** Which of the following is a redox reaction-
 (1) HCl + NaOH → NaCl + H₂O (2) CuO + H₂ → Cu + H₂O
 (3) BaCl₂ + H₂SO₄ → BaSO₄ + HCl (4) All of these
- Q.39** How many times a solution of pH = 2 has higher acidic nature than the solution of pH = 6 ?
 (1) 10000 (2) 12 (3) 400 (4) 4
- Q.40** Molecular formula of Glauber's salt is -
 (1) MgSO₄.7H₂O (2) CuSO₄.5H₂O (3) FeSO₄.7H₂O (4) Na₂SO₄.10H₂O
- Q.41** Amongst the following elements (whose electronic configurations are given below), the one having the highest ionisation energy is -
 (1) [Ne] 3s²3p¹ (2) [Ne] 3s²3p³ (3)[Ne] 3s²3p² (4) [Ar] 3d¹⁰4s²4p²
- Q.42** Which of the following is a correct combination?
 (1) Aluminium sulphate : Al₂(SO₄)₃ (2) Calcium carbonate : Ca(CO₃)₂
 (3) Silver sulphide : AgS (4) Barium Carbonate : Ba(CO₃)₂



- Q.43** 4 gm of solute dissolved in 36 gm of water. What is the mass percentage of the solution ?
 (1) 10 % (2) $\frac{1}{10}$ % (3) 100 % (4) 1000 %
- Q.44** Which of the following elements will form an acidic oxide ?
 (1) an element with atomic number – 7 (2) an element with atomic number – 3
 (3) an element with atomic number – 12 (4) an element with atomic number – 19
- Q.45** Sudden decrease in the intermolecular forces of attraction occur most efficiently in-
 (1) Evaporation (2) Melting (3) Condensation (4) Sublimation
- Q.46** Which of the following contains ionic as well as covalent bonds ?
 (1) CHCl_3 (2) CO_2 (3) NaCl (4) NaOH
- Q.47** The electron distribution in Aluminium and Chlorine atom respectively-
 (1) 2,8,3 and 2,8,7 (2) 2,8,2 and 2,8,7 (3) 2,8,3 and 2,8,6 (4) 2,8,3 and 2,8,5
- Q.48** Which of the following would weigh the highest ?
 (1) 0.2 mole of sucrose ($\text{C}_{12}\text{H}_{22}\text{O}_{11}$) (2) 2 moles of CO_2
 (3) 2 moles of CaCO_3 (4) 1 mole of CH_4
- Q. 49** Which one of the following has maximum number of atoms ?
 (1) 24 gm of C (12) (2) 56 gm of Fe (56)
 (3) 27 gm of Al (27) (4) 108 gm of Ag (108)
- Q.50** The electronic configuration of three elements X, Y and Z are X = 2,8, Y = 2,8,7 and Z = 2,8,2. Which of the following is correct ?
 (1) X is a metal (2) Y is a metal
 (3) Z is a non-metal (4) Y is a non-metal and Z is a metal
- Q.51** An element 'A' is soft and can be cut with a knife. This is very reactive to air and cannot be kept open in air. It reacts vigorously with water. The element 'A' is -
 (1) Mg (2) Na (3) P (4) Ca
- Q.52** What is molar mass of sulphuric acid-
 (1) 49 g (2) 89 g (3) 98 g (4) 198 g
- Q.53** In an experiment 10.6g of sodium carbonate reacts with 12g of ethanoic acid to form 4.4g of carbon dioxide, 1.8g of water and 16.4g of sodium ethonate. This data justifies :
 (1) law of constant proportions (2) law of conservation of mass
 (3) law of multiple proportions (4) Avodardo's law



- Q.54** 3g of carbon is burnt completely in 8g of oxygen and 11g of carbon dioxide is produced. The mass of carbon dioxide formed when 9 g of carbon burns in 24 g of oxygen is :
- (1) 22 g (2) 27 g (3) 30 g (4) 33 g
- Q.55** In α -particle scattering experiment, the gold foil is replaced by an aluminium foil of same thickness. The scattering of α -particles will be -
- (1) more (2) less (3) remain same (4) none of the above.
- Q.56** When CO_2 is passed through lime water, it turns milky; The milkiness is due to the formation of
- (1) CaCO_3 (2) Ca(OH)_2 (3) H_2O (4) CO_2
- Q.57** Heating of pyrites in air for oxidation of sulphur is called
- (1) Roasting (2) Calcination (3) Smelting (4) Slagging
- Q.58** Formation of Ni(CO)_4 and subsequent its decomposition into Ni and CO makes basis of Mond's process:
- $\text{Ni} + 4\text{CO} \xrightarrow{\text{T}_1} \text{Ni(CO)}_4 \xrightarrow{\text{T}_2} \text{Ni} + 4\text{CO}$, T_1 and T_2 are :
- (1) 100°C , 50°C (2) 50°C , 100°C (3) 50°C , 230°C (4) 230°C , 50°C
- Q.59** Correct order of electronegativity of N, O, F, P -
- (1) $\text{F} > \text{N} > \text{P} > \text{O}$ (2) $\text{F} > \text{O} > \text{P} > \text{N}$ (3) $\text{F} > \text{O} > \text{N} > \text{P}$ (4) $\text{N} > \text{O} > \text{F} > \text{P}$
- Q.60** Be^{3+} and a proton are accelerated by the same potential, their de-Broglie wavelengths have the ratio (assume mass of proton = mass of neutron) -
- (1) 1 : 2 (2) 1 : 4 (3) 1 : 1 (4) None of these

