

CHEMISTRY MDCAT

UNIT-1 (A-SERIES)

TOPICS:-

- ✓ INTRODUCTION TO FUNDAMENTAL CONCEPTS OF CHEMISTRY**
- Q.1** The number of molecules in 11g of N_2O is
 A. 6.02×10^{23} B. 3.01×10^{23}
 C. 1.505×10^{23} D. 6.02×10^{24}
- Q.2** What volume of 2g of He, 4g of CH_4 and 7.0g of N₂ is present in mixture at STP
 A. 2.24dm³ B. 22.4dm³
 C. 0.224dm³ D. 11.2dm³
- Q.3** A balanced chemical equation does not tell about
 A. Molar ratios B. Direction of Reaction
 C. Feasibility of reaction D. All of these
- Q.4** CH_2O is empirical formula for
 A. Maltose, Acetic acid B. Sucrose, lactic acid
 C. Methanol, Ethanal D. Methanal, lactic acid
- Q.5** Choose the correct relation for percentage yield
 A. $\frac{\text{Actual yield}}{\text{Theoretical yield}} \times 100$ B. $\frac{\text{Theoretical yield}}{\text{Actual yield}} \times 100$
 C. $\frac{\text{Actual yield}}{\text{Theoretical yield}} \times 10^3$ D. $\frac{\% \text{age of excess reactant}}{\% \text{age limiting reactant}} \times 100$
- Q.6** A balanced chemical equation always contain equal number of _____ of reactant and product
 A. Atoms B. Molecules
 C. Mole D. Volume
- Q.7** While determining molecular formula, the simple multiple 'n' is unity for
 A. $\text{C}_6\text{H}_6\text{O}_2$ B. $\text{C}_2\text{H}_4\text{O}_2$
 C. $\text{C}_6\text{H}_{12}\text{O}_6$ D. $\text{C}_3\text{H}_4\text{O}_3$
- Q.8** Avogadro's number of atoms are present in
 A. 3.2g CH_4 B. 17g NH_3
 C. 2g He D. 32g O_2
- Q.9** 1 amu is equal to
 A. 1.661×10^{-24} kg B. 1.661×10^{-21} g
 C. 1.661×10^{-27} g D. 1.661×10^{-24} g
- Q.10** In combustion analysis, H_2O vapours absorption is an example of
 A. Chemical Change B. Physical Change
 C. Redox Reaction D. Neutralization Reaction
- Q.11** 14 g of a gas contains 3.01×10^{23} molecules at STP. The gas is
 A. Ethane B. Acetylene
 C. Ethylene D. None of these
- Q.12** Which type of relationship can be studied with the help of balanced chemical equation
 A. Mass-volume B. Mole-volume
 C. Mole-mole D. All relations can be studied
- Q.13** The mass of an atom compared with mass of one atom of C-12 is called
 A. One mole B. Gram atomic mass
 C. Atomic number D. Relative atomic mass
- Q.14** 58.5 amu is _____ of Rock Salt
 A. Nucleon number B. Relative molecular mass
 C. Relative ionic mass D. Relative Formula mass
- Q.15** All reactants are converted to product and no side reaction takes place are basic assumption while doing calculations for-
 A. Limiting reactant B. Theoretical yield
 C. Stoichiometry D. All of above

- Q.16** 27 g of water is produced if 3 g of hydrogen react with _____ of oxygen
 A. 8g B. 16g
 C. 24g D. 32g

Q.17 The compound which can be analyzed by combustion analysis
 A. Benzene B. Ethylene Glycol
 C. Urea D. Both A and B

Q.18 10 g of lime stone has mass of carbonate ions
 A. 6g B. 6.2g
 C. 60 g D. 62 g

Q.19 17.75 g of chlorine gas has number of covalent bonds
 A. 6.02×10^{23} B. 3.01×10^{23}
 C. 1.661×10^{-21} D. 1.5×10^{23}

Q.20 A well-known gas is enclosed in a container having volume 11.2dm³ at STP. Its mass comes out to be 19 g. The unknown gas is
 A. Oxygen B. Fluorine
 C. Sulphur dioxide D. Carbon dioxide

Q.21 The efficiency of chemical reaction can be checked by calculating
 A. Amount of limiting reactant B. Amount of product formed
 C. Amount of reactant left un-used D. Amount of reactant in excess

Q.22 Identify the type of yield that can be obtained through experiment
 A. Theoretical Yield B. Calculated Yield
 C. Actual Yield D. All of these

Q.23 If 9 g of organic compound is burnt in combustion tube which gives 4.5 g of H₂O. %age of hydrogen is
 A. 55% B. 0.5%
 C. 5.5% D. 2.5%

Q.24 Which of the following term is correct for Cu = 63.5 amu
 A. Relative atomic mass B. Average atomic mass
 C. Fractional atomic mass D. All of these

Q.25 7g of CaO is produced if 50g of CaCO₃ is roasted. Find %age yield
 A. 40% B. 25%
 C. 75% D. 20%

Q.26 Under standard conditions, stoichiometry can be applied to
 A. $2H_2O \rightarrow 2H_2 + O_2$ B. $N_2 + 3H_2 \rightleftharpoons 2NH_3$
 C. $PCl_3 \rightleftharpoons PCl_2 + Cl_2$ D. $2SO_2 + O_2 \rightleftharpoons 2SO_3$

Q.27 Identify the correct statement about propionic acid and malonic acid
 A. Both have same molar mass B. Both have same number of oxygen atoms.
 C. Both have same molecular formula D. Both have different empirical formula

Q.28 8g of C and 16g of Mg contain equal number of
 A. Electrons B. Atoms
 C. Neutrons D. Molecules

Q.29 Mass of one-gram ion of PO_4^{3-} is
 A. 96 g B. 95g
 C. 97 g D. 98g

Q.30 A mole of any substance is related to
 A. Number of particles B. Volume of gaseous substance at STP
 C. Mass of a substance D. All of these

Q.31 Avogadro's number is the number of molecules present in
 A. Gram molecular mass B. 1 dm³ of CH₄
 C. 1g of atom D. 1g of formula mass

Q.32 Identify the compound that required 2 moles of oxygen gas to undergo complete combustion
 A. CO B. C₂H₅OH
 C. C₂H₂ D. CH₄

- Q.33** 6×10^{-21} moles of an amino acid having molecular mass 200 g mol⁻¹ would have molecules
 A. 200 B. 1800
 C. 100 D. 3600

Q.34 A covalent compound of simplest formula CH_3O has molar mass of 62 g mol⁻¹ its molecular formula will be
 A. 10 times of its E.F B. 4 times of its E.F
 C. 2 times of its E.F D. 6 times of its E.F

Q.35 H_2 burns in Cl_2 to produce HCl . The ratio of masses of reactants in chemical reaction $\text{H}_2 + \text{Cl}_2 \longrightarrow 2\text{HCl}$ is
 A. 2:35.5 B. 1: 35.5
 C. 1:71 D. 2: 70

Q.36 Which of the following has same number of molecules as present in 11 g of CO_2
 A. 4 g of O_2 B. 4.5 g of H_2O
 C. 4 g of O D. 0.25 moles of NaCl

Q.37 1 mole of CH_3OH and 1 mol of $\text{C}_2\text{H}_5\text{OH}$ have equal number of
 A. C – atoms B. O – atoms
 C. H-atoms D. Electrons

Q.38 Which one will produce largest number of negatively charged ions in case of 100% ionization of 1 mole of
 A. Na_2SO_4 B. NaCl
 C. CaCl_2 D. AlCl_3

Q.39 A compound has 50% of A (molecular mass = 20 g / mol) and 50% of B (molecular mass = 10 g / mol). Empirical formula is
 A. A_2B B. A_2B_2
 C. AB_2 D. A_2B_3

Q.40 1 mole of each of N_2H_4 and O_2 has same number of
 A. Molecules . B. Atoms
 C. Electrons D. All of these

Q.41 Atomic mass unit is
 A. $\frac{1}{10}$ th of mass of one C – atom B. $\frac{1}{14}$ th of mass of one C – atom
 C. $\frac{1}{12}$ th of mass of one C – atom D. $\frac{1}{6}$ th of mass of one C – atom

Q.42 The number of chlorine atoms present in 0.1 mole of $\text{C}_2\text{H}_4\text{Cl}_2$ are
 A. 6.02×10^{22} B. $2 \times 6.02 \times 10^{22}$
 C. 3.01×10^{23} D. 9.03×10^{22}

Q.43 The maximum amount of the product that can be produced by a given amount of a reactant, according to balanced chemical equation is called
 A. Actual yield B. Theoretical yield
 C. %age yield D. Yield

Q.44 Which of the following compounds show same molecular and empirical formula?
 A. Glyoxal B. Ethane
 C. Urea D. Oxalic acid

Q.45 The number of oxygen atoms in 4.4 g of CO_2 is
 A. N_A B. $N_A/10$
 C. $N_A/20$ D. $N_A/5$

Q.46 Number of neutrons in 1.8 g of steam
 A. $8 N_A$ B. $0.8 N_A$
 C. $4 N_A$ D. $0.4 N_A$

Key: UNIT - 1

- 1) C (C) 2) (B) 3) (C) 4) D 5) (A) 6) (A)
7) (D) 8) (A) 9) (D) 10) (B) 11) (C) 12) (D)
13) (D) 14) (D) 15) (D) 16) (C) 17) (B) 18) (A)
19) (D) 20) (B) 21) (B) 22) (C) 23) (C) 24) (B)
25) (B) 26) (A) 27) (D) 28) (B) 29) (B) 30) (D)
31) (A) 32) (D) 33) (D) 34) (C) 35) (B) 36) (B)
37) (B) 38) (D) 39) (C) 40) (A) 41) (C) 42) (B)
43) (B) 44) (C) 45) (D) 46) (B) 47) (B) 48) (A)
49) (B) 50) (B) 51) (B) 52) (B) 53) () 54) (C)
55) (B) 56) (D) 57) (B) 58) (D) 59) (B) 60) (A)

CHEMISTRY MDCAT

UNIT-2 (A-SERIES)

TOPICS
✓ ATOMIC STRUCTURE

- Q.1** The atomic number of an element is 24. How many s, p and d-electrons it possesses in ground state?
 A. 12,7,5 B. 7,12,5
 C. 7,5,12 D. 8,12,4
- Q.2** Total number of lobes in all the d orbitals of d subshell
 A. 14 B. 18
 C. 15 D. 10
- Q.3** Pair of quantum numbers whose values could be equal to zero
 A. m and s B. m and l
 C. n and s D. n and l
- Q.4** Magnetic quantum number values for f subshell is
 A. 3 B. 2
 C. 7 D. 5
- Q.5** Which of the following is correct statement about Fe and Ni
 A. 8 electrons in all s subshells B. 3d is fully filled
 C. 7 electrons in N shell D. 3d is half filled
- Q.6** Quantum number values for valence shell of Mg atom
 A. n=1, l=0 B. n=3, l=0
 C. n=2, l=0 D. n=3, l=1
- Q.7** Correct order of energy in the given subshell is
 A. 5s>3d>3p>4s B. 3p>3d>5s>4s
 C. 5s>3d>4s>3p D. 3p>3d>4s>5s
- Q.8** During the formation of Cr⁺¹ from Cr atom electron will be removed from a subshell. What are the possible values of n and l for that subshell
 A. n=1, l=0 B. n=4, l=0
 C. n=2, l=0 D. n=3, l=0
- Q.9** Identify the element that has 1 electron in its valence shell
 A. Li B. Mg
 C. C D. Ca
- Q.10** Total number of fundamental particles in lightest isotope of Hydrogen
 A. 0 B. 3
 C. 4 D. 2
- Q.11** In all of the electronic configurations Hund's rule is not followed except
 A. 1s², 2s², 2p_x².2p_y¹, 2p_z⁰ B. 1s², 2s², 2p_x¹.2p_y¹, 2p_z¹
 C. 1s², 2s², 2p_x¹.2p_y², 2p_z⁰ D. 1s², 2s¹, 2p_x², 2p_y², 2p_z⁰
- Q.12** The nature of the positive rays depend on
 A. The nature of the electrode B. The nature of the discharge tube
 C. The nature of the residual gas D. All of the above
- Q.13** Which of the following sub-shell does not exist
 A. 4f B. 5p
 C. 3d D. 3f
- Q.14** An electron in a hydrogen atom makes a transition from an energy level E₂ to one with energy E₁ and simultaneously emits a photon. The wavelength of the emitted photon is
 A. $\frac{hc}{E_2 - E_1}$ B. $\frac{h}{E_2 - E_1}$
 C. $\frac{h}{c(E_2 - E_1)}$ D. $\frac{(E_2 - E_1)}{hc}$
- Q.15** Identify the element that have same number of s and p electrons
 A. Na B. Al
 C. Mg D. Ne

- Q.30** Set of iso-electronic species is.
- A. H₂, CO₂, CN⁻
 - B. N₂, CO, CN⁻
 - C. N₂, H₂S, CO
 - D. Ca, Mg, Cl
- Q.31** How many total electrons are present in spherical symmetrical orbitals of an atom with Z = 29
- A. Two
 - B. Six
 - C. Seven
 - D. Eight
- Q.32** $\ell = 3$ then the values of magnetic quantum numbers are.
- A. 0, ±1, ±2, ±3
 - B. 0, 1, 2, 3
 - C. 0, 1, -2, -3
 - D. 0, ±1, ±2
- Q.33** Number of electrons in $_{31}\text{Ga}^{+3}$ is equal to
- A. Atomic number of Ni
 - B. Atomic number of Mn
 - C. Atomic number of Ca
 - D. Atomic number of Fe
- Q.34** The set of elements which has one electron in their N shell respectively
- A. Cr and Co
 - B. Cu and Co
 - C. Cr and Cu
 - D. Cr and Mn
- Q.35** The electrons identified by quantum number n and ℓ
- (i) n = 4, ℓ = 1
 - (ii) n = 4, ℓ = 0
 - (iii) n = 3, ℓ = 2
 - (iv) n = 3, ℓ = 1
- Can be placed in order of increasing energy from the lowest to highest as
- A. iv < iii < ii < i
 - B. i < iii < ii < iv
 - C. ii < iv < i < iii
 - D. iii < i < iv < ii
- Q.36** The number of unpaired electrons retained in Sc^{3+} (At. Number of Sc=21) ions is similar to the unpaired d-electrons present in.
- A. Zn²⁺
 - B. Mn²⁺
 - C. Fe²⁺
 - D. Ti⁺³
- Q.37** Which of the following sets of quantum number is correct for an electron in 4f orbital?
- A. n = 4, ℓ = 3, m = +4
 - B. n = 4, ℓ = 3, m = +1
 - C. n = 4, ℓ = 4, m = -4
 - D. n = 3, ℓ = 2, m = -2
- Q.38** Identify the elements that has least electrons in its M shell
- A. Cr
 - B. Mn
 - C. Ca
 - D. V
- Q.39** Indicate incorrect statement regarding subatomic particles of an atom.
- A. Mass of electron is 9.1095×10^{-31} Kg
 - B. A proton has 1836 times greater mass than an electron
 - C. Mass of proton is 1.6726×10^{-24} g
 - D. Canal rays do not show deflection in electric field
- Q.40** Value of Planck's constant of a photon whose frequency is doubled as compare to initial value
- A. 6.64×10^{-34} Js
 - B. $2 \times 6.64 \times 10^{-34}$ Js
 - C. $1.5 \times 6.64 \times 10^{-34}$ Js
 - D. $3 \times 6.64 \times 10^{-34}$ Js
- Q.41** Identify the heaviest fundamental subatomic particles that shows deflection in charge detector
- A. Neutron
 - B. Proton
 - C. Alpha particles
 - D. Electron
- Q.42** What are the values of principal quantum number and azimuthal quantum number for the last electron in Chlorine atom?
- A. 1, 6
 - B. 1, 3
 - C. 3, 1
 - D. 6, 1
- Q.43** 2p₁ and 3p₁ have similar values for _____
- A. Energy of the orbital
 - B. Size of orbital
 - C. n+1 value
 - D. Shape of orbital
- Q.44** A p-orbital cannot accommodate
- A. Six electrons with opposite spin
 - B. Two electrons with opposite spin
 - C. One electron with anticlockwise spin
 - D. One electron with clockwise spin
- Q.45** With the increase in value of principal quantum number which one will not change
- A. Size of s orbitals
 - B. Energy of p-orbitals
 - C. Shape of p-orbitals
 - D. Size of p-orbitals

Q.46 Match list I and list II and pick the correct matching from given codes.

A) Non-directional character	1) $2p_x, 2p_y, 2p_z$
B) Application of Hund's rule	2) Zero electron density
C) Nodal surface	3) s-orbital
D) Degenerate orbital	4) $3p_x^2, 3p_y^1, 3p_z^1$

- A. A-1, B-3, C-4, D-2
 C. A-3, B-4, C-2, D-1
 D. A-1, B-3, C-2, D-4

Q.47 Orbital which is not associated with the values $n = 3$ and $l = 2$

- A. $d_{x^2-y^2}$
 C. p_x
 B. d_{z^2}
 D. d_{yz}

Q.48 Identify incorrect quantum number values

- A. $n = 1, l = 0, m = 0, s = -1/2$
 C. $n = 4, l = 1, m = -1, s = +1/2$
 B. $n = 4, l = 1, m = -2, s = +1/2$
 D. $n = 3, l = 2, m = 2, s = +1/2$

Q.49 According to Planck's quantum theory:

- A. A body emits energy in quanta
 B. A body absorbs energy in quanta
 C. Emits or absorb radiations discontinuously
 D. All of these

Q.50 Without applying Hund's rule the electronic configuration of one of the following cannot be justified

- A. Fluorine
 C. Sodium
 B. Neon
 D. Phosphorous

Q.51 The space between 1s and 2s where the probability of finding an electron is zero

- A. Free space
 C. Node
 B. Orbital
 D. Orbit

Q.52 Wavelength of a photon of light emitted by a certain source is 200 Å° . The wave number will be

- A. $5 \times 10^3 \text{ m}^{-1}$
 C. $5 \times 10^7 \text{ m}^{-1}$
 B. 500 nm^{-1}
 D. $500 \times 10^7 \text{ m}^{-1}$

Q.53 Two different electron can never have same values of all four Quantum numbers, this is stated by

- A. Heisenberg's Principle
 C. Hund's rule
 B. Auf Bau Principle
 D. Pauli's exclusion Principle

Q.54 Every atom in excited states violates

- A. Heisenberg's Principle
 C. Hund's rule
 B. Auf Bau Principle
 D. Pauli exclusion Principle

Q.55 The shape of 1s, 2s and 3s is

- A. Different
 C. Similar
 B. Linear
 D. Flate

Q.56 A photon of light moving with energy $3.3 \times 10^{-30} \text{ J}$. The frequency of photon is ($\hbar = 6.6 \times 10^{-34} \text{ Js}$)

- A. 500 Hz
 C. 5000 Hz
 B. $0.5 \times 10^{30} \text{ Hz}$
 D. $2.5 \times 10^4 \text{ Hz}$

Q.57 Which of the following is the shape of one of the d-orbital

- A. O
 B.
 C.
 D.

Q.58 According to Planck's Quantum theory, greater the energy of electromagnetic radiation, lesser will be the _____

- A. Wavelength
 C. Wave number
 B. Frequency
 D. Both "b" and "c"

Q.59 Total fundamental particles present in the shells of He

- A. 1
 C. 3
 B. 4
 D. 2

Q.60 A di-valent cation having 18 electrons and 20 neutrons. The nucleon number of atom will be

- A. 38
 C. 36
 B. 40
 D. 37

- 1) B 15) C 29) C 43) D 57) B
2) B 16) B 30) B 44) A 58) A
3) B 17) B 31) **C** 45) C 59) D
4) C 18) B 32) A 46) C 60) E
5) A 19) B 33) A 47) C
6) B 20) D 34) C 48) B
7) C 21) C 35) A 49) D
8) B 22) C 36) A 50) D
9) A 23) B 37) B 51) C
10) D 24) D 38) C 52) C
11) B 25) D 39) D 53) D
12) C 26) D 40) A 54) B
13) D 27) D 41) B 55) C
14) A 28) B 42) C 56) C

CHEMISTRY MDCAT

UNIT-3 (A-SERIES)

TOPICS:-

✓ GASES, LIQUIDS AND SOLIDS

- Q.1** Which one has highest boiling point
 A. CCl_4 B. CBr_3
 C. CHCl_3 D. CHBr_3
- Q.2** 8g of unknown gas at STP has volume of 11.207 dm^3 . The unknown gas is
 A. NH_3 B. CH_4
 C. Cl_2 D. O_2
- Q.3** Which statement about isomorphic substances is incorrect. They have
 A. Different chemical properties B. Same atomic ratio
 C. Same physical properties D. Same geometry of anion
- Q.4** What is the ratio of K.E of 3g of H_2 and 4g of O_2 at given temperature
 A. 1:6 B. 6:1
 C. 12:1 D. 24:1
- Q.5** Which one has highest melting point
 A. S_8 B. I_2
 C. P_4 D. Dry ice
- Q.6** Helium shows positive deviation from ideal behaviour due to its
 A. Low viscosity B. Large size
 C. Low polarizability D. Low density
- Q.7** At a temperature of -10°C , which one does not behave the property of molecule crystal
 A. Phosphorus B. Water
 C. Sucrose D. Silicon
- Q.8** Which factor affect the shape of an ionic solid
 A. Electrostatic force of attraction B. Radius ratio
 C. Poor conductivity D. All of above
- Q.9** Density of liquid water below 273K _____ due to _____ structure
 A. Increases 9%, cubic B. Decreases 18%, cubic
 C. Increases 9%, hexagonal D. Decreases 9%, hexagonal
- Q.10** Which of the following molecules will show a higher rate of evaporation?
 A. Acetone B. Water
 C. Ethanol D. Ethylene glycol
- Q.11** Units of gas constant "R" at STP are
 A. $8.314 \text{ atm dm}^3 \text{ K}^{-1} \text{ mol}^{-1}$ B. $0.0821 \text{ atm dm}^3 \text{ mol}^{-1} \text{ K}^{-1}$
 C. $62400 \text{ atm dm}^3 \text{ K}^{-1} \text{ mol}^{-1}$ D. $1.989 \text{ J K}^{-1} \text{ mol}^{-1}$
- Q.12** Considering initial volume V , if pressure of a gas is increased by two times and temperature is reduced by two times as well, then its volume would become
 A. $\frac{V}{4}$ B. $\frac{V}{2}$
 C. $4V$ D. $2V$
- Q.13** Which one is correct relationship for a gas at ideal conditions?
 A. $m = \frac{\text{PVM}}{\text{RT}}$ B. $M = \frac{\text{PTd}}{R}$
 C. $m = \frac{\text{RT}}{\text{MPV}}$ D. $d = \frac{\text{RTm}}{P}$
- Q.14** Gases shows non-ideal behaviour at
 A. Low pressure, low temperature B. High pressure, low temperature
 C. Low pressure, high temperature D. High pressure, high temperature

- Q.29 Maximum change in vapor pressure occurs when temperature changes from**
- A. 10-20 °C
 - B. 70-80 °C
 - C. 50-60 °C
 - D. 90-100 °C
- Q.30 One of the factors on which vapour pressure of liquid depends is**
- A. Amount of liquid
 - B. Nature of liquid
 - C. Volume of container
 - D. Surface area
- Q.31 Water boils at 69°C at top of Mount Everest. Vapor pressure of water at this point is**
- A. 1489 torr
 - B. 323 torr
 - C. 760 torr
 - D. 700 torr
- Q.32 Evaporation is inversely related to**
- A. Inter molecular force
 - B. Temperature
 - C. Surface area
 - D. Both 'B' and 'C'
- Q.33 Evaporation is not _____ process**
- A. Endothermic
 - B. Exothermic
 - C. Spontaneous
 - D. Cooling
- Q.34 Molar heat of vaporization of water**
- A. 40.6 kJ/mol
 - B. 40.6 J/mol
 - C. 406 kJ/mol
 - D. 0.46 kJ/mol
- Q.35 Correct order of boiling point of group VA hydrides**
- A. NH₃>PH₃>AsH₃>SbH₃
 - B. SbH₃>AsH₃>PH₃>NH₃
 - C. SbH₃>NH₃>PH₃>AsH₃
 - D. SbH₃>NH₃>AsH₃>PH₃
- Q.36 Amount of energy required to increase temperature of 1.2×10^{24} gas molecules from 273K to 274K is**
- A. 16.628J
 - B. 0.0821 atm. dm³
 - C. 8.314 Nm
 - D. 1.98 Cal
- Q.37 Among the following hydrides, which halogen hydride is most volatile**
- A. HF
 - B. HI
 - C. HCl
 - D. HBr
- Q.38 Which of the following pair of liquids possess hydrogen bonding in mixture, but dipole forces in the individual components?**
- A. Ethanol and water
 - B. Chloroform and acetone
 - C. Carboxylic acid and water
 - D. Hydrocarbon and water
- Q.39 Which one shows highest boiling point**
- A. Neopentane
 - B. n-Pentane
 - C. Iso-butane
 - D. Isopentane
- Q.40 Force of attraction significant between H₂O and H₂**
- A. Dipole-dipole
 - B. Dipole-induced dipole
 - C. Hydrogen bonding.
 - D. London dispersion forces
- Q.41 London dispersion forces are only prominent forces between the molecules of.**
- A. CH₃OH
 - B. CH₃NH₂
 - C. CH₃F
 - D. CH₃CH₃
- Q.42 Highest boiling point among the following**
- A. NH₃
 - B. CH₄
 - C. H₂O
 - D. HF
- Q.43 Identify the hydride that does not have hydrogen bonding**
- A. HF
 - B. H₂O
 - C. NH₃
 - D. CH₄
- Q.44 Forces of attraction present between SO₂ molecules**
- A. Dipole -dipole
 - B. Hydrogen bonding
 - C. Dipole-Induced dipole
 - D. Ion-dipole
- Q.45 At 25°C, minimum vapour pressure is possessed by**
- A. Water
 - B. Isopentane
 - C. Ethanol
 - D. Glycerol

- | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|
| 1(B) | 2(B) | 3(C) | 4(C) | 5(A) | 6(C) | 7(D) |
| 8(D) | 9(D) | 10(A) | 11(C) | 12(A) | 13(A) | 14(B) |
| 15(B) | 16(C) | 17(B) | 18(C) | 19(D) | 20(A) | 21(D) |
| 22(D) | 23(A) | 24(D) | 25(D) | 26(B) | 27(D) | 28(C) |
| 29(D) | 30(B) | 31(B) | 32(A) | 33(B) | 34(A) | 35(D) |
| 36(A) | 37(C) | 38(B) | 39(B) | 40(B) | 41(D) | 42(C) |
| 43(D) | 44(A) | 45(D) | 46(D) | 47(C) | 48(D) | 49(A) |
| 50(C) | 51(D) | 52(A) | 53(D) | 54(B) | 55(B) | 56(B) |
| 57(D) | 58(C) | 59(B) | 60(D) | | | |

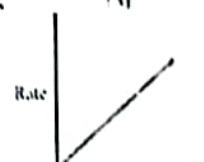
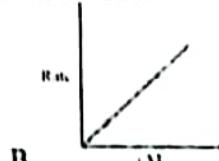
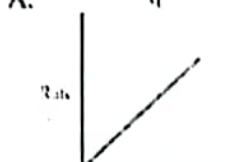
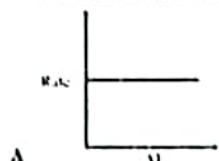
CHEMISTRY MDCAT

UNIT-4 (A-SERIES)

TOPICS

- ✓ CHEMICAL EQUILIBRIUM
- ✓ CHEMICAL KINETICS

- Q.1** According to Le-Chateller's principle adding heat to solid-liquid equilibrium will cause the Solid \rightleftharpoons Liquid
- A. Amount of solid to decrease
 - B. Amount of liquid to increase
 - C. Temperature increase
 - D. Temperature decrease
- Q.2** The partial pressure of CO_2 and CO is 2.0 atm and 4.0 atm respectively. Find out the value of K_p for the given reaction $\text{C}_{(s)} + \text{CO}_{(g)} \rightleftharpoons 2\text{CO}_{(g)}$
- A. 2.0 atm
 - B. 4.0 atm
 - C. 0.5 atm
 - D. 8.0 atm
- Q.3** The pK_a values of CH_3COOH is 4.74, the pH of equimolar solution of acetic acid and sodium acetate is:
- A. 13.0
 - B. 7.2
 - C. 4.79
 - D. 4.74
- Q.4** For a gaseous reaction the rate of reaction is expressed in the units
- A. atm
 - B. atm sec^{-1}
 - C. atm sec
 - D. atm sec^{-2}
- Q.5** The value of rate constant of a reaction depends upon
- A. Time
 - B. Concentration of reactant
 - C. Temperature
 - D. Order of reaction
- Q.6** Which of the following graph is for first order reaction



- Q.7** The value of activation energy of a chemical reaction depends upon
- A. Temperature
 - B. Concentration of reactant
 - C. Nature of reactant species
 - D. Enthalpy of reaction
- Q.8** Which of the following is correct statement about the function of catalyst
- A. It increases the activation energy
 - B. It increase kinetic energy of reactant
 - C. It alters the mechanism of reaction
 - D. It alter the ΔH of reaction
- Q.9** Photosynthesis, a photochemical reaction has order of reaction
- A. 0
 - B. 1
 - C. 2
 - D. Fractional
- Q.10** Concentration of reactants and products at the state of equilibrium may be
- A. Conc. Reactant = Conc. Product
 - B. Conc. Reactant < Conc. Product
 - C. Conc. Reactant > Conc. Product
 - D. All are possible
- Q.11** Which of the following is correct for the given reaction $\text{N}_2\text{O}_{(g)} \rightleftharpoons 2\text{NO}_{(g)}$
- A. The forward reaction is endothermic while backward reaction will be exothermic
 - B. The forward reaction is exothermic while backward reaction will be endothermic
 - C. Both the reactions will be exothermic
 - D. Both the reactions will be endothermic
- Q.12** Which of the following statement is correct regarding equilibrium constant
- A. Its value increases with the rise of temperature
 - B. Its value increases with the fall of temperature
 - C. Its value may increase or decrease with the rise of temperature
 - D. Its value remains constant for all temperature
- Q.13** Which of the following expression is correct for $2\text{SO}_{3(g)} + \text{O}_{2(g)} \rightleftharpoons 2\text{SO}_4^{2-}$
- A. $K_p = K_c(RT)^4$
 - B. $K_c = K_p(RT)$
 - C. $K_p = K_c / RT$
 - D. All are correct
- Q.14** The most suitable conditions for preparation of ammonia gas by Haber's process are
- A. Fe, 400 atm and 250°C
 - B. Fe, 200 atm and 450°C
 - C. FeO, 300 atm and 150°C
 - D. 550°C only

- Q.15** All of the following have no unit of K_c except _____
 A. $H_{2(g)} + F_{2(g)} \rightleftharpoons 2HF_{(g)}$ B. $H_{2(g)} + I_{2(g)} \rightleftharpoons 2HI_{(g)}$
 C. $N_2 + 3H_2 \rightleftharpoons 2NH_3$ D. $N_2 + O_2 \rightleftharpoons 2NO$
- Q.16** Ratio of K_c/K_p for the reaction $N_2 + 3H_2 \rightleftharpoons 2NH_3$ is
 A. 1 B. $(RT)^{\frac{1}{2}}$
 C. $(RT)^2$ D. $(RT)^{-\frac{1}{2}}$
- Q.17** What is the equilibrium expression for the reaction
 $N_2 + 3H_2 \rightleftharpoons 2NH_3$
 A. $K_c = \frac{[NH_3]}{[N_2][H_2]}$ B. $K_c = \frac{[2NH_3]}{[N_2][3H_2]}$
 C. $K_c = \frac{[N_2][H_2]}{[NH_3]^2}$ D. $K_c = \frac{[NH_3]^2}{[N_2][H_2]}$
- Q.18** $PCl_{4(g)} \rightleftharpoons PCl_{3(g)} + Cl_{2(g)}$ is at equilibrium, the concentration of $PCl_{4(g)}$ is increased then reaction will shift towards _____ and K_c _____
 A. Left, increased B. Right, decreased
 C. Left, remain same D. First left then right
- Q.19** For reaction $2SO_{2(g)} + O_{2(g)} \rightleftharpoons 2SO_{3(g)}$ unit of K_p is
 A. atm B. atm^{-1}
 C. atm^{-2} D. atm^2
- Q.20** $2X + Y \rightleftharpoons Z$ At equilibrium 0.20 mole of X, 0.45 mole of Y and 0.15 mole of Z are present, Calculate K_c
 A. 8.3 B. 5.0
 C. 4.0 D. 6.0
- Q.21** In a gaseous reaction, moles of products are greater than reactants and reaction is endothermic, what are the conditions that can be applied to get maximum yield
 A. Suitable catalyst, low temperature and low pressure
 B. Suitable catalyst, low temperature and high pressure
 C. Suitable catalyst, high temperature and high pressure
 D. Suitable catalyst, high temperature and low pressure
- Q.22** Energy required to start a reaction is called
 A. Ionization energy B. Activation energy
 C. Bond energy D. Lattice energy
- Q.23** The equilibrium expression for reaction is $K_c = \frac{4x^2}{(a-x)y}$ for a gaseous phase reaction then number of moles of product are _____ reactants
 A. Greater than B. Less than
 C. Equal to D. May equal or greater
- Q.24** Which of the following solution cannot act as a buffer solution
 A. $CH_3COOH + CH_3COONa$ B. $NH_4OH + NH_4Cl$
 C. $H_2CO_3 + NaHCO_3$ D. $HCl + NaCl$
- Q.25** The buffer with maximum buffer capacity will be
 A. $pH = pK_a$ B. $[Salt] = [Acid]$
 C. $pH > pK_a$ D. Both 'A' and 'B'
- Q.26** If the concentration of salt is greater than the acid in buffer solution, then
 A. $pH = pK_a$ B. $pH > pK_a$
 C. $pOH = pK_b$ D. $pH < pK_b$
- Q.27** pH of buffer is _____ if [acid] = 0.19M and [salt] = 1.9 and $pK_b = 9.26$
 A. 5.74 B. Between 3 and 4
 C. 4.74 D. 3.74
- Q.28** $A + B \rightleftharpoons C + D$ in this reaction, at equilibrium $[A] = 2.5M$, $[B] = 3.2M$, $[C] = 5M$ and $[D] = 4M$, calculate the K_c for this reaction.
 A. 2.5 B. 20
 C. 12 D. 27
- Q.29** The solubility of $AlCl_3$ is 's' mole per dm^3 . Its K_{sp} would be
 A. $9s^3$ B. $4s^3$
 C. $27s^4$ D. $9s^4$

- Q.30** BiCl₃ reacts with water to form artificial milk (BiOCl) and HCl, by dilution of reaction mixture
 A. More artificial milk is formed B. Cone. of HCl decreased
 C. Cone. of BiOCl decreased D. Cone. of BiCl₃ increased
- Q.31** The value of equilibrium constant K_c for the reaction $2\text{HF}_{(g)} \rightleftharpoons \text{H}_{2(g)} + \text{F}_{2(g)}$ is 10^{-13} at 2000°C calculate the value of K_p for this reaction
 A. 2×10^{-13} B. 186×10^{-13}
 C. 10^{-13} D. 3.48×10^{-9}
- Q.32** A buffer solution is that which resists/minimizes the change in
 A. pH B. pK_a
 C. pK_b D. All of these
- Q.33** If in AgCl solution, some salt of NaCl is added, AgCl will be precipitated due to:
 A. Solubility B. Electrolyte
 C. Unsaturation effect D. Common ion effect
- Q.34** Formation of NH₃ is reversible and exothermic process, what will happen on cooling?
 A. More reactant will form
 B. More H₂ will be formed
 C. More N₂ will be formed
 D. More amount of reactants will be converted into the products
- Q.35** Which one of the following is the correct representation for K_{sp}?
 $\text{AgCl} \rightleftharpoons \text{Ag}^+ + \text{Cl}^-$
 A. $K_{sp} = \frac{[\text{AgCl}]}{[\text{Ag}^+][\text{Cl}^-]}$ B. $K_{sp} = \frac{[\text{Ag}^+][\text{Cl}^-]}{[\text{AgCl}]}$
 C. $K_{sp} = [\text{Ag}^+][\text{Cl}^-]$ D. $K_{sp} = [\text{AgCl}]$
- Q.36** Precipitation occurs when the product of ionic concentration is?
 A. Greater than K_{sp} B. Less than K_{sp}
 C. Very smaller than K_{sp} D. Equal to unity
- Q.37** Purification of table salt (NaCl) by passing HCl gas through its saturated aqueous solution is an example of
 A. Law of mass action B. Hess's law
 C. Common ion effect D. Henry's law
- Q.38** If K_c value is very large then equilibrium position lies
 A. Towards left B. Towards right
 C. Remains unchanged D. It is always constant value
- Q.39** For the first order reaction, half-life is related to the expression $t_{1/2} = 0.693/k$ Half-life is the
 A. Time taken for the conc. of the product to increase to half of its original value
 B. Time taken for the concentration of the reactant, to fall to half of its products value
 C. Time taken for the concentration of the reactant to fall to half of its original value
 D. Time taken for the concentration of the reactant to fall to quarter of its original value
- Q.40** If solubility product (K_{sp}) value is large, the salt in water is:
 A. More soluble B. Less soluble
 C. Moderately soluble D. Insoluble
- Q.41** The unit of rate constant 'k' is same as rate of reaction in
 A. 1st order reaction B. 2nd order reaction
 C. Zero order reaction D. 3rd order reaction
- Q.42** In which case, decrease of pressure favours forward reaction
 A. $\text{N}_2 + \text{O}_2 \rightleftharpoons 2\text{NO}$ B. $2\text{SO}_2 + \text{O}_2 \rightleftharpoons 2\text{SO}_3$
 C. $\text{PCl}_5 \rightleftharpoons \text{PCl}_3 + \text{Cl}_2$ D. $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$
- Q.43** What happens to rate of reaction if concentrations of A and B are doubled?
 The rate expression of a reaction is, Rate = $k[A][B]^2$
 A. Increased two times B. Increased four times
 C. Increased eight times D. Increased nine times
- Q.44** Which one is NOT physical method for rate determination of chemical reaction
 A. Dilatometric method B. Spectrometric method
 C. Half-life method D. Optical rotation method
- Q.45** During reaction, there is small change in volume then the rate can be determined by
 A. Spectrometry method B. Optical rotation method
 C. Electrical conductivity method D. Dilatometric method
- Q.46** The rate of a chemical reaction doubles for every 10°C rise of temperature. If the temperature is raised to 62°C from 2°C, the rate of the reaction increases by about
 A. 32 B. 16
 C. 8 D. 64

Q.47 For the reaction $A + B \rightarrow C$, the following rate data was obtained

[A]	[B]	Rate (molar Sec ⁻¹)
1	1.5	0.10
3	1.5	0.90
3	3.00	0.90

the rate expression from this data

- A. Rate = $k[A][B]^2$ B. Rate = $k[A][B]$
 C. Rate = $k[A]^2[B]^0$ D. Rate = $k[A]^2[B]$

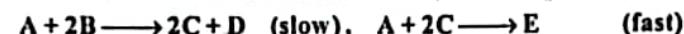
Q.48 For third order reaction, rate constant 'k' has units

- A. mol dm⁻³s⁻¹ B. s⁻¹
 C. mol⁻¹dm³s⁻¹ D. mol⁻²dm⁶s⁻¹

Q.49 The rate of reaction can be increased in general by all of the following factors except

- A. By increasing the temperature B. Using a suitable catalyst
 C. By increasing concentration of reactants D. By increasing activation energy

Q.50 $2A + 2B \rightarrow D + E$ for the reaction, following mechanism has been proposed



Select the correct law equation

- A. Rate = $k[A]^2[B]^2$ B. Rate = $k[A]^2[B]^2[C]$
 C. Rate = $k[A][B]^2$ D. Rate = $k[A][B]$

Q.51 Which of the followings is pseudo first order reaction

- A. Acid catalyzed hydrolysis of an ester B. Hydrolysis of tertiary butyl bromide
 C. Chloroform to Carbon tetrachloride D. Both A and B

Q.52 Which of the following is correct at the state of equilibrium

- A. $R_f = R_r$
 B. Conc. of reaction mixture becomes constant
 C. Conc-time graph becomes parallel to the time-axis
 D. All of these

Q.53 All are correct about zero order except

- A. All photochemical reactions are zero order
 B. Radioactive decay follows zero order
 C. Rate is independent of concentration
 D. Half-life is directly proportional to initial concentration of reactants

Q.54 An endothermic reaction $A \rightarrow B$ has an activation energy of 15 kJ/mole. The enthalpy of reaction is 10 kJ / mole. The activation energy for the reaction is $B \rightarrow A$

- A. 15 kJ/mole B. 10 kJ/mole
 C. 20 kJ/mole D. 5 kJ/mole

Q.55 Difference of energy between reactants and transition state is called

- A. Enthalpy of reaction B. Kinetic energy
 C. Activation energy D. Internal energy

Q.56 What will be rate of reaction, when change in concentration of substance is 3×10^{-3} moles dm⁻³ in 10 sec

- A. 4.8×10^{-3} mol dm⁻³ sec⁻¹ B. 3×10^{-2} mol dm⁻³ sec⁻¹
 C. 3×10^{-4} mol dm⁻³ sec⁻¹ D. 3×10^2 mol dm⁻³ sec⁻¹

Q.57 If the energy of activation of a chemical reaction is very low, the rate of that chemical reaction is observed to be very high because?

- A. Concentration of the reactants becomes irrelevant
 B. Number of effective or fruitful collision increase
 C. Reaction proceeds without any transition state
 D. Molecules of the reactants move slowly

Q.58 In a reaction $2X + Y \rightarrow M + N$

If the concentration of Y kept constant and that of X is tripled. The rate of reaction will

- A. Increase 3 times B. Increase 27 times
 C. Increase 2 times D. Increase 9 times

Q.59 When the concentration of reactant in the reaction is increased by 8 times, the rate increased only by 2 times. The order of reaction is

- A. 1 B. $\frac{1}{3}$

- C. $\frac{1}{2}$ D. 2

Q.60 If 'a' is the initial concentration of the reactant then half-life period of the reaction of nth order is directly proportional to

- A. a^{n+1} B. a^{1-n}
 C. a^n D. a^{n-1}

1. pebilo kaow solid ↓

9

7. \rightarrow firstly only Dependent
TIONS on Requirements



KIPS
PREPARATIONS

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	●	●	○	○		16	○	○	●		31	○	○	●	○	46	○	○	●
2	○	○	○	●		17	○	○	○	●	32	●	○	○	●	47	○	○	●
3	○	○	○	●		18	○	○	●	○	33	○	○	○	●	48	○	○	●
4	○	●	○	○		19	○	●	○	○	34	○	○	○	●	49	○	○	○
5	○	○	●	○		20	●	○	○	○	35	○	○	●	○	50	○	○	●
6	○	●	○	○		21	○	○	○	●	36	●	○	○	○	51	○	○	●
7	○	○	●	○		22	○	●	○	○	37	○	○	●	○	52	○	○	●
8	○	○	●	○		23	●	○	○	○	38	○	●	○	○	53	○	●	○
9	●	○	○	○		24	○	○	○	●	39	○	○	●	○	54	○	○	●
10	○	○	○	●		25	○	○	○	●	40	●	○	○	○	55	○	○	●
11	●	○	○	○		26	○	●	○	○	41	○	○	●	○	56	○	○	●
12	○	○	●	○		27	●	○	○	○	42	○	○	●	○	57	○	●	○
13	○	○	○	●		28	●	○	○	○	43	○	○	●	○	58	○	○	●
14	○	●	○	○		29	○	○	●	○	44	○	○	●	○	59	○	●	○
15	○	○	●	○		30	●	○	○	○	45	○	○	○	●	60	○	●	●

$$46 \cdot \text{Rate} = (2) \frac{st}{10}$$

47. \rightarrow ISC vector As B is
constant.

CHEMISTRY MDCAT

UNIT-5 (A-SERIES)

TOPICS

✓ **THERMO-CHEMISTRY AND ENERGETICS OF CHEMICAL REACTIONS**

✓ **ELECTROCHEMISTRY**

Q.1 Standard enthalpy of formation is zero for

- A. $\text{CO}_{(g)}$ B. $\text{Br}_{2(g)}$
 C. $\text{Cu}_{(s)}$ D. $\text{Cl}_{(g)}$

Q.2 The sum of all the energies of all the molecules or atoms of a substance is called its

- A. Specific heat B. Heat capacity
 C. Latent heat D. Internal energy

Q.3 Heat of formation of MgO is given below. $\text{Mg} + \frac{1}{2}\text{O}_{2(g)} \rightarrow \text{MgO}_{(s)}$, $\Delta H = -692 \text{ kJ mol}^{-1}$
 This equation shows that

- A. The product is very stable B. The reaction is endothermic
 C. The product is highly unstable D. The reactants are very stable

Q.4 The oxidation number of "Br" in HBrO_3 is

- A. +1 B. +3
 C. +5 D. +2

Q.5 Which of the following will form the cathode with iron electrode?

- A. Mg B. Al Fe
 C. Zn D. Cu

Q.6 Smaller is the value of standard reduction potential of substance

- A. Greater is the oxidizing power of the substance
 B. Greater is the reducing power of the substance
 C. Lesser will be its tendency to combine with oxygen
 D. Lesser will be its tendency to displace hydrogen from acid.

Q.7 If a rod of zinc metal placed in a solution of Copper sulphate then

- A. Cu will precipitate out B. Zn will dissolve
 C. No reaction occurs D. Both A and B

Q.8 The equation that represents standard heat of formation

- A. $4\text{Al}_{(s)} + 3\text{O}_{2(g)} \rightarrow 2\text{Al}_2\text{O}_{3(s)}$ B. $\text{H}^+_{(aq)} + \text{OH}^-_{(aq)} \rightarrow \text{H}_2\text{O}_{(l)}$
 C. $2\text{Al}_{(s)} + 3\text{O}_{2(g)} \rightarrow \text{Al}_2\text{O}_{3(s)}$ D. $\text{CO} + \frac{1}{2}\text{O}_{2(g)} \rightarrow \text{CO}_{2(g)}$

Q.9 ΔH° for $\text{CO}_{2(g)}$, $\text{CO}_{(g)}$ and $\text{H}_2\text{O}_{(g)}$ is -393.5, -110.5 and -285.8 kJ/mol respectively. ΔH° (in kJ) for the reaction, $\text{CO}_{2(g)} + \text{H}_{2(g)} \rightarrow \text{CO}_{(g)} + \text{H}_2\text{O}_{(g)}$ is

- A. +524.1 B. -2.8
 C. -262.5 D. 41.2

Q.10 In the reaction: $2\text{CrO}_4^{2-} + 2\text{H}^+ \rightarrow \text{Cr}_2\text{O}_7^{2-} + \text{H}_2\text{O}$:

- A. Cr is oxidized B. Cr is reduced
 C. Cr neither oxidized nor reduced D. Cr is oxidized and reduced

Q.11 Which one indicates enthalpy of atomization

- A. $\text{Na}_{(s)} \rightarrow \text{Na}_{(g)}$ B. $\text{Na}_{(g)} \rightarrow \text{Na}_{(s)}$
 C. $\text{Na}_{(s)} \rightarrow \text{Na}^+_{(g)}$ D. $\text{H}_{(g)} \rightarrow 2\text{H}_{(s)}$

Q.12 E° of Fe^{2+}/Fe is -0.44 V; E° of Cu^{+2}/Cu is +0.34 V. Then in the cell

- A. Cu oxidizes Fe^{2+} ion B. Cu reduces Fe^{2+} ion
 C. Cu^{+2} oxidizes Fe D. Cu^{+2} ion reduces Fe

Q.13 Stronger reducing agents have high negative value of

- A. Oxidation potential B. Redox potential
 C. Reduction potential D. Emf of cell

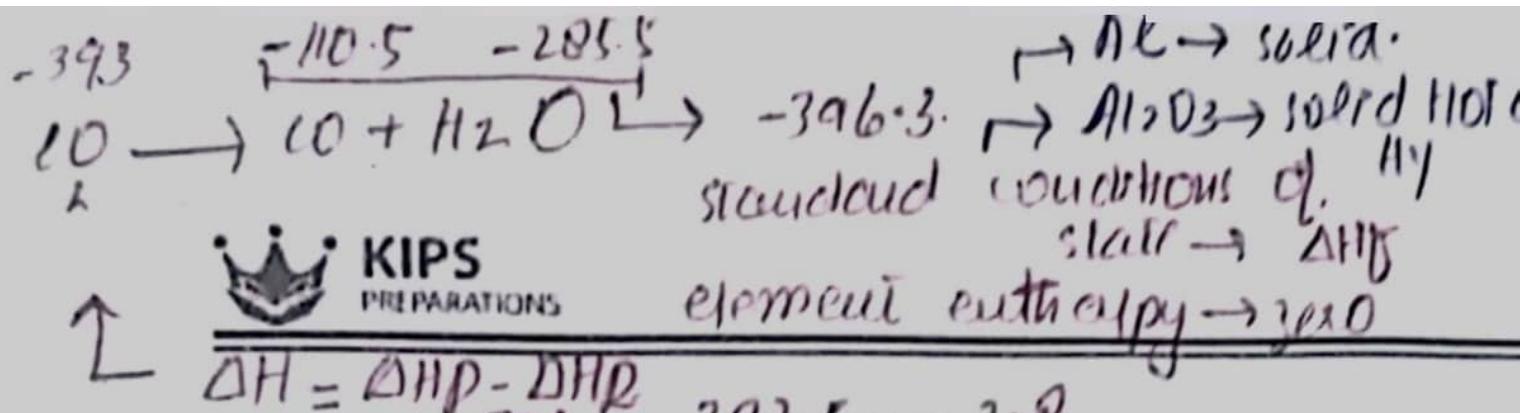
Q.14 Which of the following has the lowest oxidation state of Mn?

- A. KMnO_4^{+1} B. $\text{Mn}_2\text{O}_3^{+3}$
 C. MnO_2^{+4} D. MnSO_4



- Q.30** Two half-cell reactions are
 $2\text{H}^+ / \text{H}_2$; $E^\circ_{\text{red}} = 0.00 \text{ V}$
 $\text{Ag}^{+1} / \text{Ag}$; $E^\circ_{\text{red}} = +0.80 \text{ V}$
 E°_{cell} of cell is
A. +0.80 V B. 0.00 V
C. -0.80 V D. -1.66 V
- Q.31** The product produced at the cathode when aqueous cupric chloride is electrolyzed
A. Cu B. O_2
C. Cl_2 D. H_2
- Q.32** A state function which describes together the internal energy and product of pressure and volume is called
A. Enthalpy B. Work
C. Internal energy D. Kinetic energy
- Q.33** Which of the following does not depend on initial and final state
A. Enthalpy B. Temperature
C. Internal energy D. Heat
- Q.34** Enthalpy of formation of hydrogen molecule is -436 kJ/mol what will be enthalpy of atomization of hydrogen
A. -393 kJ/mol B. +218 kJ/mol
C. -218 kJ/mol D. +436 kJ/mol
- Q.35** The Enthalpy change for the reaction, $\text{C}_2\text{H}_2 + 5/2\text{O}_2 \rightarrow 2\text{CO}_2 + \text{H}_2\text{O}$ is known as enthalpy of
A. Formation of CO_2 B. Fusion of C_2H_2
C. Combustion of C_2H_2 D. Vaporization of C_2H_2
- Q.36** Which one of the following pairs has maximum enthalpy of neutralization?
A. $\text{HCl} + \text{NaOH}$ B. $\text{HCl} + \text{NH}_4\text{OH}$
C. $\text{KOH} + \text{CH}_3\text{COOH}$ D. $\text{NH}_4\text{OH} + \text{CH}_3\text{COOH}$
- Q.37** Which one of the following is an oxidizing agent in the following reaction?
 $\text{Zn}^\circ + 2\text{Ag}^{+1} \xrightarrow{\text{oxl}} \text{Zn}^{+2} + 2\text{Ag}^\circ$
A. Zn B. Ag
C. Ag^{+1} D. Zn^+
- Q.38** In electrolytic solution, conduction is carried out by
A. Ions B. Electrons
C. Metal electrodes D. Graphite
- Q.39** Which of the following statement is true about Zn-Cu cell
A. Electron move to zinc from Cu \times
B. Reduction potential of Cu is less than Zn \times
C. E°_{cell} is 1.10
D. Zinc acts as Cathode
- Q.40** Amount of energy absorbed when 1 mole of solid NaCl is dissociated into its gaseous ions
A. -787 kJ/mol B. +787 kJ/mol
C. 156 kJ/mol D. 1917 kJ/mol
- Q.41** Calorie is equivalent to
A. 0.4184 J B. 40.18 J
C. 4.184 J D. 418.4 J
- Q.42** The enthalpy of neutralization for given reaction
 $\text{H}_2\text{SO}_4 + \text{Ba}(\text{OH})_2 \rightarrow \text{BaSO}_4 + 2\text{H}_2\text{O}$, is
A. $-57.4 \text{ kJ mol}^{-1}$ B. $-114.8 \text{ kJ mol}^{-1}$
C. $+57.4 \text{ kJ mol}^{-1}$ D. $114.8 \text{ kJ mol}^{-1}$
- Q.43** When MnO_2 is reduced to Mn^{+2} then
A. 2e^- are added on LHS B. 5e^- are added on LHS
C. 2e^- are added on RHS D. 5e^- are added on RHS
- Q.44** Which of the following enthalpy is always proceeding through absorption of heat?
A. Enthalpy of solution
B. Enthalpy of combustion
C. Enthalpy of sublimation
D. Enthalpy of formation

- Q.45** The change in enthalpy of a system when one mole of the substance is completely burnt in excess of air or oxygen is called
 A. Enthalpy of reaction B. Enthalpy of formation
 C. Enthalpy of atomization D. Enthalpy of combustion
- Q.46** ΔH° represent the enthalpy change at
 A. 0°C and 1 atm pressure B. 25°C and 1 atm pressure
 C. 0K and 1 atm pressure D. 25°C and 2 atm pressure
- Q.47** A system absorbs 100 kJ heat and performs 50 kJ work. The increase in internal energy of the system is
 A. 150 kJ B. 50 kJ
 C. 100 kJ D. 5000 kJ
- Q.48** In order to determine ΔH_{latt} of ionic compound which is correct relationship
 A. $\Delta H_{latt} = \Delta H_f - \Delta H_i$ B. $\Delta H_{latt} = \Delta H_s + \Delta H_v$
 C. $\Delta H_{latt} = \Delta H_f + \Delta H_i$ D. $\Delta H_{latt} = \Delta H_f - \Delta H_{sol}$
- Q.49** With the decrease in charge to size ratio of ions, the lattice energy
 A. Remains unaffected B. Decreases
 C. Increases D. All of these are possible
- Q.50** Hess's law is analogous to
 A. Law of constant heat summation B. Law of increasing entropy
 C. Law of heat exchange D. Law of mass action
- Q.51** The heat of combustion of ethane (C_2H_6) is -337.0 kJ at 25°C. The heat of the reaction when 3g of ethane is burnt completely is
 A. -3.37 kJ B. -33.7 kJ
 C. +3.37 kJ D. 33.7 kJ
- Q.52** Born-Haber cycle is an application of
 A. Hess's law B. 1st law of thermodynamics
 C. Avogadro's law D. 2nd law of thermochemistry
- Q.53** Which of the following enthalpy of formation cannot be measured directly?
 A. ΔH_f for ionic compound B. ΔH_f of $CO_{(g)}$
 C. ΔH_f of B_2O_3 D. All of these
- Q.54** Enthalpy of combustion of food, fuel and other compounds can be measured accurately by
 A. Glass calorimeter B. Bomb calorimeter
 C. Thermometer D. Manometer
- Q.55** Arrange Mg, K and Na in the order of their decreasing reduction potentials
 A. K, Na, Mg B. Mg, K, Na
 C. Na, K, Mg D. Mg, Na, K
- Q.56** Which equation shows lattice energy for ionic compound
 A. $Na_{(s)} + \frac{1}{2}Cl_{2(g)} \rightarrow NaCl_{(s)}$ B. $Na^{+}_{(s)} + Cl^{-}_{(s)} \rightarrow NaCl_{(s)}$
 C. $Na_{(s)} + Cl_{(g)} \rightarrow NaCl_{(s)}$ D. $Na^{+}_{(s)} + Cl^{-}_{(s)} \rightarrow NaCl_{(s)}$
- Q.57** A process which is spontaneous and endothermic
 A. $H_2O_{(l)} \longrightarrow H_2O_{(g)}$ B. $H_2O_{(s)} \longrightarrow H_2O_{(l)}$
 C. $N_{2(g)} + O_{2(g)} \longrightarrow 2NO_{(g)}$ D. $NaOH + HCl \longrightarrow NaCl + H_2O$
- Q.58** The Enthalpy Change for the reaction $C_{(s)} + O_{2(g)} \rightarrow CO_{2(g)}$ is called
 A. Enthalpy of formation of CO_2 B. Enthalpy of combustion of C
 C. Enthalpy of reaction D. All of these
- Q.59** For a given gaseous process, the heat changes at constant pressure(q_p) and at constant volume (q_v) are related to each other as
 A. $q_p = q_v$ B. $q_p > q_v$
 C. $q_p < q_v$ D. $q_p \leq q_v$
- Q.60** The enthalpy of formation of an ionic compound is -390 kJ / mol. Total energy changes (ΔH_f) involved in the formation of gaseous ions from normal physical state is 280 kJ/mol. The enthalpy of lattice(ΔH_{latt}) is
 A. -110 kJ / mol B. + 670 kJ/mol
 C. - 670 kJ / mol D. + 110 kJ / mol



(6)
-670

$+2 -2 (6)$
MnSO₄
T_f

	A B C D	A B C D	A B C D	A B C D
1	O ● ● ● O	O O O O ●	● O O O O	O ● ● ○ O
2	O O O O ●	O O O ● O	● O O O O	O ● ● ○ O
3	● O O O O	O O ● O O	○ O O O ●	● O O O O
4	O O O O O	O O O ● O	○ O O O O	O ● ● ○ O
5	O O O O ●	O O O O O	○ O O O O	● O O O O
6	O ● O O O	O ● O O O	● O O O O	● O O O O
7	● O O O O	O ● O O O	○ O O O ●	● O O O O
8	O O O ● ●	O O O O ●	○ O O O ●	● O O O O
9	O ● O O O	O O ● O O	○ O O O O	● O O O O
10	● O O O O	O O O O O	○ O O O O	● O O O O
11	● O O O O	O O O O ●	○ O O O O	● O O O O
12	O O O O O	O O O O ●	● O O O O	● O O O O
13	O O O O O	O O O O O	● O O O O	● O O O O
14	O ● O O O	O O O O ●	● O O O O	● O O O O
15	O ● O O O	O O O O O	● O O O O	● O O O O
16	O O O O O	O O O O O	● O O O O	● O O O O
17	O O O O ●	O O O O O	● O O O O	● O O O O
18	O O O ● O	O O O O O	● O O O O	● O O O O
19	O O O O O	O O O O O	● O O O O	● O O O O
20	O O O O O	O O O O ●	● O O O O	● O O O O
21	O ● O O O	O ● O O O	● O O O O	● O O O O
22	O ● O O O	O ● O O O	● O O O O	● O O O O
23	O O O O ●	O O O O O	● O O O O	● O O O O
24	O O O O O	O O O O O	● O O O O	● O O O O
25	● O O O O	O O O O O	● O O O O	● O O O O
26	O O O O O	● O O O O	● O O O O	● O O O O
27	O O O O O	● O O O O	● O O O O	● O O O O
28	O O O O O	● O O O O	● O O O O	● O O O O
29	O O O O O	● O O O O	● O O O O	● O O O O
30	O O O O O	● O O O O	● O O O O	● O O O O
31	● O O O O	O O O O O	● O O O O	● O O O O
32	● O O O O	O O O O O	● O O O O	● O O O O
33	O O O O O	● O O O O	● O O O O	● O O O O
34	O O O O O	● O O O O	● O O O O	● O O O O
35	O O O O O	● O O O O	● O O O O	● O O O O
36	● O O O O	O O O O O	● O O O O	● O O O O
37	O O O O O	● O O O O	● O O O O	● O O O O
38	● O O O O	O O O O O	● O O O O	● O O O O
39	O O O O O	● O O O O	● O O O O	● O O O O
40	O O O O O	● O O O O	● O O O O	● O O O O
41	O O O O O	● O O O O	● O O O O	● O O O O
42	● O O O O	O O O O O	● O O O O	● O O O O
43	● O O O O	O O O O O	● O O O O	● O O O O
44	O O O O O	● O O O O	● O O O O	● O O O O
45	O O O O O	● O O O O	● O O O O	● O O O O
46	O ● ● ○ O	O ● ● ○ O	● O O O O	● O O O O
47	O ● ● ○ O	O ● ● ○ O	● O O O O	● O O O O
48	● O O O O	O ● ● ○ O	● O O O O	● O O O O
49	O ● ● ○ O	O ● ● ○ O	● O O O O	● O O O O
50	● O O O O	O ● ● ○ O	● O O O O	● O O O O
51	O ● ● ○ O	O ● ● ○ O	● O O O O	● O O O O
52	● O O O O	O ● ● ○ O	● O O O O	● O O O O
53	O ● ● ○ O	O ● ● ○ O	● O O O O	● O O O O
54	● O O O O	O ● ● ○ O	● O O O O	● O O O O
55	O ● ● ○ O	O ● ● ○ O	● O O O O	● O O O O
56	● O O O O	O ● ● ○ O	● O O O O	● O O O O
57	O ● ● ○ O	O ● ● ○ O	● O O O O	● O O O O
58	● O O O O	O ● ● ○ O	● O O O O	● O O O O
59	O ● ● ○ O	O ● ● ○ O	● O O O O	● O O O O
60	● O O O O	O ● ● ○ O	● O O O O	● O O O O

enthalpy of formation

\rightarrow element state

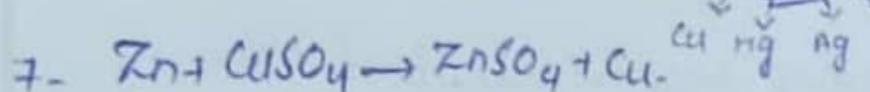
(ii) $\rightarrow Na \rightarrow$ aqueous solid kif form
min. temp.

Chemistry unit 05

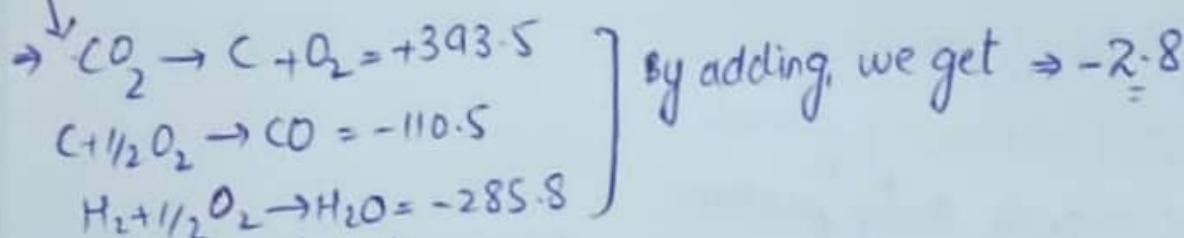
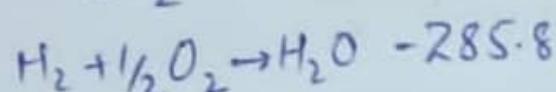
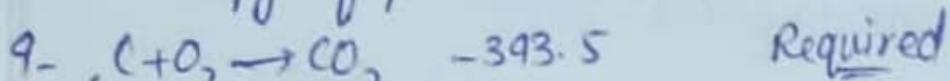
1- If element is in original state, then enthalpy of that element is zero.

Exo has stable products. $\rightarrow U_f^{\circ}$ stable

5- Cathode with iron electrode : $CHAP \xrightleftharpoons{Pt} Au$

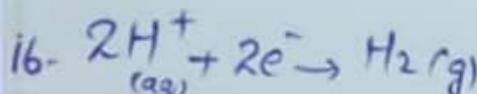


8- Enthalpy of formation: Element \rightarrow compound formation.



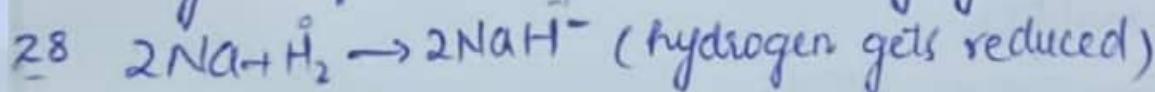
10 Find the oxi states of Cr.

12 From Electrochemical series, $Fe^{+2}(\text{oxi})$ (top) $Cu^{+2}(\text{red})$ (bottom)



21 Find oxi-states on both sides.

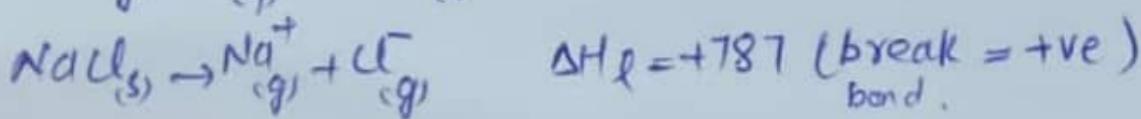
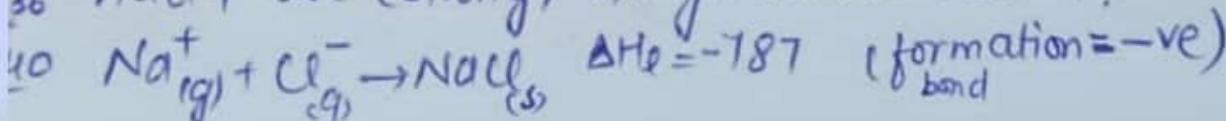
25- Negative potential $\uparrow \Rightarrow$ best reducing agent.



32 $\Delta H = \Delta E + P\Delta V \Rightarrow$ enthalpy

34 Atomization \rightarrow Half: $+218 \text{ kJ mol}^{-1}$ always positive.

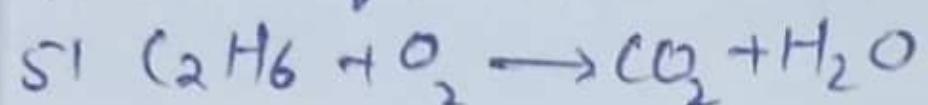
36 Acid + Base (Strong) \rightarrow high neutralization.



42. Two moles \Rightarrow per mole \times

44. Sublimation is always positive

$$47 \quad \Delta E = q + w \Rightarrow 100 + (-50) = 50 \text{ kJ}$$



30g	-33.7
$\frac{1}{10}$	$\downarrow \frac{1}{10}$
3g	-33.7

57 $\text{H}_2\text{O(l)} \rightarrow \text{H}_2\text{O(g)}$: Evaporation \rightarrow spontaneous / Endothermic

$$60 \quad \Delta H_f = \Delta H_f - \Delta H_n \Rightarrow -390 - 280 = -670 \text{ kJ mol}^{-1}$$

CHEMISTRY MDCAT

UNIT-6 (A-SERIES)

TOPICS

CHEMICAL BONDING



- Q.15** Which of the following methods is used to measure bond length?
A. X-ray diffraction B. Electron-diffraction
C. Spectroscopic techniques D. All of these
- Q.16** In Cl_2 molecule, total numbers of lone pairs are equal to number of bond pairs of?
A. Ethyne B. Ethane
C. Ethene D. None of these
- Q.17** The geometry of NH_3 according to valence shell electron pair repulsion (VSEPR) theory will be
A. Trigonal planar B. Trigonal pyramidal
C. Tetrahedral D. Square planar
- Q.18** The number of lone pairs and bond pairs of electrons in carbon disulphide molecule are respectively
A. 1 and 3 B. 4 and 1
C. 3 and 1 D. 4 and 4
- Q.19** Which information is incorrect for compound formed from given structure
-
- A. N carries positive charge B. N and B will not complete their octet
C. B carries negative charge D. NH_3 is donor while BF_3 is accepter
- Q.20** Using VSEPR theory, predict the species which has tetrahedral shape
A. SnCl_2 B. SiCl_4
C. SO_3 D. PH_3
- Q.21** The covalent bond length is the shortest in which one of the following bonds?
A. C — O B. C — C
C. C — N D. C — F
- Q.22** As the s-character of hybridized orbital increases, the bond angle
A. Becomes zero B. Decrease
C. Increases D. Does not change
- Q.23** Which of the following molecule possessed trigonal bipyramidal geometry
A. BCl_3 B. SF_6
C. SO_3 D. PCl_5
- Q.24** Pick out the incorrect statement from the following
A. sp hybrid orbitals are equivalent and are at an angle of 180° with each other
B. sp^2 hybrid orbitals are equivalent and bond angle between any two of them is 120°
C. sp^3 hybrid orbitals are equivalent and are oriented towards corners of a regular tetrahedron
D. None of these
- Q.25** Lateral overlapping is expected in
A. Sigma bond B. Pi bond
C. Metallic bond D. Ionic bond
- Q.26** The highest ionization energy is for which of the following element?
A. Beryllium B. Boron
C. Nitrogen D. Oxygen
- Q.27** The increase in shielding effect while down the group in the periodic table results in ionization energy
A. Decrease B. Increase
C. No change D. First increase then decreases
- Q.28** In BF_3 , the electronegativity difference between B (E.N = 2.0) and F (E.N = 4.0) is 2. Then the bond between B and F is considered as
A. Non polar covalent B. Polar covalent
C. Ionic bond D. Dative bond
- Q.29** Select the correct order of radii
A. $\text{X}^- > \text{X} > \text{X}^+$ B. $\text{X}^+ > \text{X} > \text{X}^-$
C. $\text{X} > \text{X}^- > \text{X}^+$ D. $\text{X}^- = \text{X} = \text{X}^+$
- Q.30** The electronegativity value of other elements are compared with standard element
A. Carbon B. Hydrogen
C. Oxygen D. Fluorine
- Q.31** The ionization energy of Be is higher than B is due to
A. Half-filled s-subshell electronic configuration
B. Full-filled s-subshell electronic configuration
C. Half-filled p-subshell electronic configuration
D. Full filled p-subshell electronic configuration

- Q.48** The ionization energies of an element are given below



The element X may belong to

- A. IVA B. IIIA
C. IIIA D. IA

- ### O.49 Number of sigma and pi bonds in 3-pent-1-yne

- A. $9\sigma, 2\pi$
 B. $10\sigma, 3\pi$
 C. $11\sigma, 3\pi$
 D. $8\sigma, 2\pi$

- Q.50 Select the correct order of Van der Waal's electron pair repulsions

- A. Lone pair – lone pair > lone pair – bond pair > bond pair - bond pair
B. Lone pair – lone pair < lone pair – bond pair < bond pair – bond pair
C. Lone pair – lone pair > lone pair – bond pair < bond pair – bond pair
D. Lone pair – lone pair = lone pair – bond pair = bond pair – bond pair

- O.51 Which of following pair contain iso-structural species**

- A. CH_4 and CH_3^+ B. SO_4^{2-} and BF_4^-
 C. NH_3 and PF_3 D. CO_2 and SO_3

- Q.52** Hybridization is the extended form of _____ theory.

- Q.53** Bond length is inversely proportional to all except

 - A. Size
 - B. Bond order
 - C. Strength of bond
 - D. Difference of electronegativity

- Q.54** The nature of hybridization of sulphur in the sulphur (VI) oxide is

- C. sp

- The shape of sulphate ion is**

 - A. Square planar
 - B. Triagonal pyramid
 - C. Trigonal bipyramidal
 - D. Tetrahedral

- Q.56** The valence electron pairs are arranged around the central atom to remain at minimum repulsion.

- Q.57** Complete the following statement by choosing the appropriate option. Ionic bonds will be formed more easily between elements with comparatively X _____ and elements with comparatively high negative value of Y.

- A. X = low electronegativity Y = ionization energy
 B. X = low ionization energy Y = electron affinity
 C. X = high ionization energy Y = electron affinity
 D. X = high electronegativity Y = ionization energy

- Q.58** A sigma-bonded molecule MZ_3 has trigonal planar shape. The number of non-bonding pair of electrons is

- A. 0 B. 2
C. 1 D. 3

- O-59** The bond angle in NF_3 molecule is

- The bond angle in NF_3 molecule is
 A. 109.5° B. 102°
 C. 180° D. 90°

- O 60** Molecule in which the distance between two carbon atoms is largest is

- Molecule in which the distance between two carbon atoms is minimum**

 - A. Ethane
 - B. Ethyne
 - C. Ethene
 - D. Benzene

IE & stability &
Reactivity



Cl^2sp^3 - octahedral

$\text{Clsp}^3 \rightarrow$ Bipyramidal

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D	
1	○	○	●	●		16	○	○	●	○	31	○	●	○	○	46	○	○	●	○
2	○	○	●	○		17	○	●	○	○	32	○	○	○	●	47	○	○	●	○
3	●	○	○	○		18	○	○	●	●	33	●	○	○	○	48	○	○	●	○
4	○	●	○	○		19	○	●	○	○	34	○	○	●	○	49	○	●	○	○
5	○	●	●	○		20	○	●	○	○	35	○	●	●	○	50	●	○	○	○
6	○	●	●	○		21	○	○	○	●	36	○	●	○	○	51	○	●	○	○
7	○	○	●	●		22	○	●	●	○	37	●	○	○	○	52	○	○	●	○
8	○	○	○	●		23	○	●	○	○	38	○	○	●	○	53	●	●	○	○
9	○	●	○	○		24	○	○	○	●	39	●	○	○	○	54	●	○	○	○
10	●	○	○	○		25	○	●	○	○	40	○	●	●	●	55	○	○	●	●
11	●	○	○	○		26	●	○	●	○	41	○	○	●	○	56	○	○	●	○
12	○	●	○	○		27	●	○	○	○	42	●	○	○	○	57	○	●	○	○
13	●	○	●	○		28	○	●	●	○	43	●	○	○	○	58	●	○	○	○
14	○	○	●	●		29	●	○	○	○	44	○	○	○	●	59	○	●	○	○
15	○	○	○	●		30	○	○	○	●	45	○	○	●	○	60	●	○	○	○

1	0	0	0
2	1	1	1
3	2	2	2
4	3	3	3
5	4	4	4
6	5	5	5
7	6	6	6
8	7	7	7
9	8	8	8
10	9	9	9

SUBJECT:

NAME: _____

R. NO. (II) _____

CLASS: _____

SIGN: _____



CHEMISTRY MDCAT

UNIT-7 (A-SERIES)

TOPICS:-

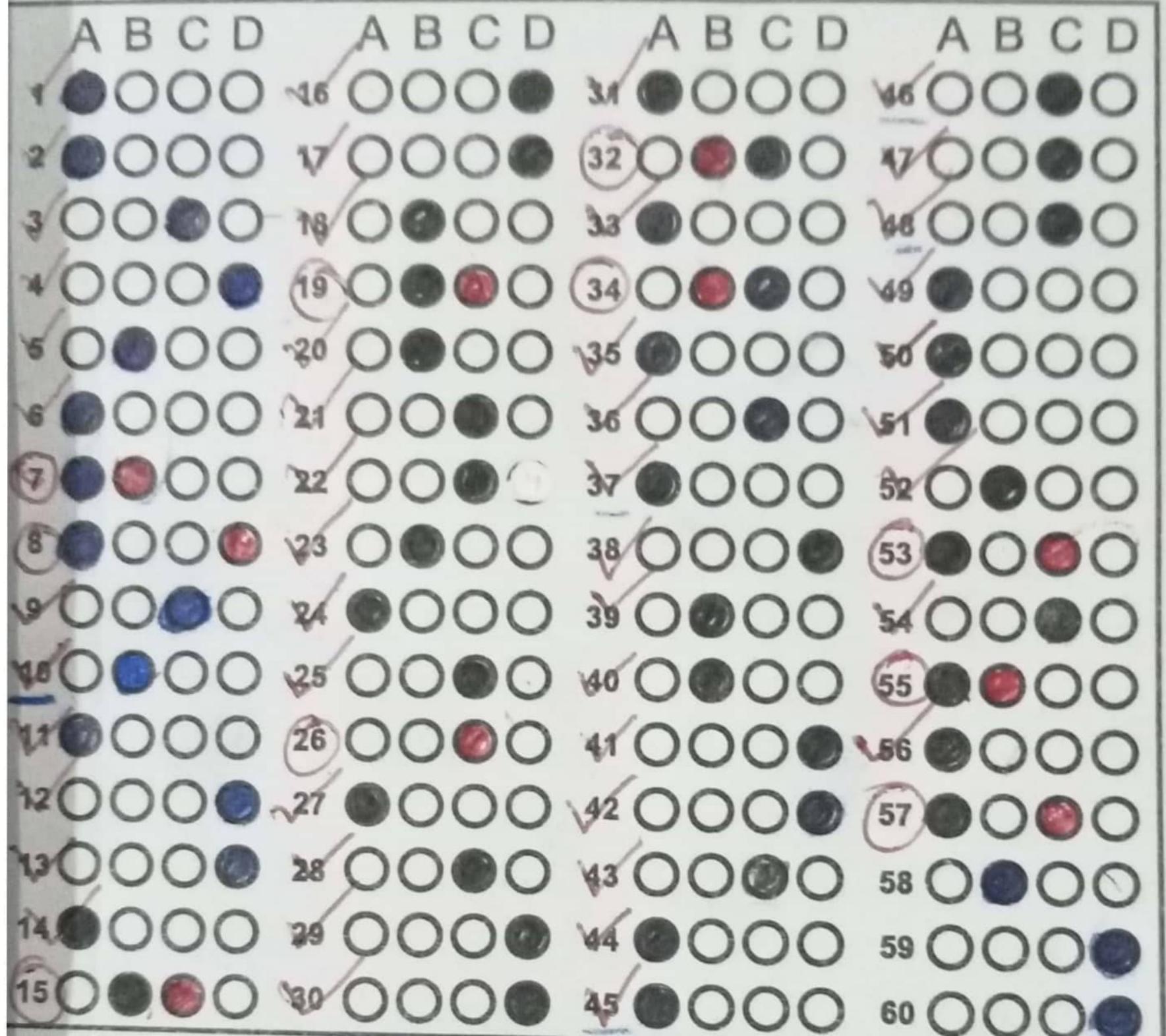
- ✓ **s AND p BLOCK ELEMENTS**
- ✓ **TRANSITION ELEMENTS**

- Q.1** Electrical conductivity of Silicon is greater than all of following except
- A. Sodium
 - B. Chlorine
 - C. Phosphorus
 - D. Sulphur
- Q.2** Melting point of boron is higher than beryllium due to
- A. Boron possess more lattice points
 - B. Boron is p-block element
 - C. Boron is non-metal
 - D. Beryllium is metal
- Q.3** Which oxide among the following when dissolved in water, will turn blue litmus into red
- A. Al₂O₃
 - B. Ga₂O₃
 - C. B₂O₃
 - D. In₂O₃
- Q.4** Lithium shows peculiar behaviour due to following reasons
- A. Small atomic radius
 - B. High charge density
 - C. High ionization energy
 - D. All of the above
- Q.5** Which of following shows diagonal relationship with Lithium
- A. Be
 - B. Mg
 - C. Ca
 - D. Sr
- Q.6** Highest lattice energy is possessed by
- A. BeO
 - B. MgO
 - C. CaO
 - D. SrO
- Q.7** Transition element which is restricted to only one type of oxidation state
- A. Sc
 - B. Zn
 - C. Cr
 - D. Ni
- Q.8** Which of the following produces largest number of anions on dissociation
- A. Triammine trichloro platinum(IV)chloride $\left[Pt\left(NH_3\right)_3Cl_3\right]Cl$
 - B. Tetraammine dichloro platinum(III)chloride $\left[Pt\left(NH_3\right)_4Cl_2\right]Cl$
 - C. Pentaammine chloro platinum(III)chloride $\left[Pt\left(NH_3\right)_5Cl\right]Cl$
 - D. Hexammine platinum(III)chloride $\left[Pt\left(NH_3\right)_6\right]Cl_3$
- Q.9** Mn²⁺ is more paramagnetic as compared to Fe²⁺. This is because of
- A. More unpaired electrons in Fe²⁺
 - B. Partially filled d-subshell of Mn²⁺
 - C. More unpaired electrons in Mn²⁺
 - D. Partially filled d-subshell of Fe²⁺
- Q.10** The factors which not decide the shape of transition metal complexes
- A. Coordination number
 - B. Charge on sphere
 - C. Hybridization
 - D. None of these
- Q.11** In periodic table, the period number tells the
- A. Number of shells
 - B. Electronic configuration
 - C. Metallic character
 - D. Photon
- Q.12** In each period, the highest melting point is shown by elements of IVA group due to
- A. Giant structure
 - B. Largest number of binding electrons
 - C. Non-metallic nature
 - D. Both A and B
- Q.13** Select the best electrical conductor among the followings
- A. Sodium
 - B. Copper
 - C. Aluminium
 - D. Silver

- Q.14** The lowest ionization energy is property of _____ elements in each period of periodic table
 A. IIIA group B. IIA group
 C. IA group D. VII group
- Q.15** An element "X" burns in air with pale green flame, identify the X from the following
 A. Li B. Ca
 C. Ba D. Na (Golden Yellow)
- Q.16** The oxide of _____ forms a suspension in water, used to treat acidity of stomach
 A. Be B. Ca
 C. Sr D. Mg
- Q.17** Which of the following pair of the elements forms per oxide on burning in air
 A. Li and Be B. K and Mg
 C. Li and Ca D. Na and Ba
- Q.18** The lowest melting point is of _____ among II-A elements
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 C. Ca D. Ba
- Q.19** The reaction of _____ with water is an acid base reaction but not reduction and oxidation
 A. Potassium super oxide B. Sodium per oxide
 C. Lithium oxide D. All of the above
- Q.20** Which one of the following elements forms an amphoteric oxide on burning in air
 A. Li B. Be
 C. B D. N
- Q.21** Which one of the following oxides produced in aqueous solution of pH around 14 on hydrolysis
 A. N_2O_5 B. Cl_2O_7
 C. RbO_2 D. All of the above
- Q.22** Which one of the following pairs of elements produce hydrogen gas on reaction with caustic soda. $+ NaOH \rightarrow H_2$
 A. Li and Be B. Al and Na
 C. Be and Al D. Na and Be
- Q.23** The element which is resistant towards complete oxidation due to protective coating of oxide over it
 A. Lithium B. Beryllium
 C. Boron D. Carbon
- Q.24** What is hybridization of Li in its $[Li(NH_3)_4]^+$ complex
 A. sp^3 B. sp^2
 C. sp D. dsp^2
- Q.25** The hybridization of Fe in $[Fe(CO)_5]$ is
 A. sp^3 B. dsp^2
 C. dsp^3 D. d^2sp^3
- Q.26** The chemical formula of tetramminechloronitroplatinum (IV) sulphate
 A. $[Pt(NO_2)(Cl)(NH_3)_4]SO_4$ B. $[PtCl(NH_3)_4(NO_2)]SO_4$
 C. $[PtCl(NO_2)(NH_3)_4]SO_4$ D. $[Pt(NH_3)_4(Cl)(NO_2)]SO_4$
- Q.27** Oxidation state of central metal atom in $[Ni(CO)_4]$ is
 A. 0 B. +1
 C. +2 D. +3
- Q.28** Combination of central metal atom/ion and ligands written in square bracket is
 A. Complex B. Co-ordination complex
 C. Co-ordination sphere D. Chelate



- Q.29 $[\text{Ar}] 4s^0 3d^5$ is electronic configuration of
A. Fe^{+1} B. Mn^{+2}
C. Cr^{+1} D. All of the above
- Q.30 _____ represents the specie, doesn't show colour
A. $[\text{Ar}] 4s^{1-2} 3d^0$ B. $[\text{Ar}] 4s^{1-2}, 3d^{10}$
C. $[\text{Ar}] 4s^{1-2} 3d^{1-9}$ D. Both A and B
- Q.31 Which one of the following ligands will form ring containing complex
A. $\text{C}_2\text{O}_4^{2-}$ B. Cl^-
C. H_2O D. NO_2
- Q.32 The total number of elements belonging to short periods of periodic table are
A. 2 B. 16
C. 8 D. 18
- Q.33 Oxidation state greater than +1 is ruled out for
A. Alkali metals B. Noble gases
C. Alkaline earth metals D. Halogens
- Q.34 Which of the following third period element shows highest melting point
A. Na B. S
C. P D. Cl
- Q.35 The element of largest radius in each period belong to _____ family
A. Alkali metals B. Alkaline earth metals
C. Chalcogens (6A) D. Halogens
- Q.36 Which of the following pair of elements does not follow the trend of ionization energy along the period while moving left to right
A. Li and Be B. Be and B
C. Al and S D. N and P
- Q.37 In sequence of elements, the first radioactive element starts from which block
A. p-block B. s-block
C. d-block D. f-block
- Q.38 The least electronegative metal is
A. Lithium B. Sodium
C. Potassium D. Rubidium
- Q.39 The following sketch show the variation in a physical property of third period elements against their number
-
- The graph plots a physical property against atomic number (11 to 18). The property increases steadily from 11 to 13, reaches a sharp peak at element 14 (Si), drops sharply to element 15 (P), and then gradually declines to element 18 (Ar).
- N O > F
P
- What physical property is plotted in this sketch?
A. Ionic radius B. Melting point
C. Ionization energy D. Atomic radius
- Q.40 The ionic radius of oxide ion is greater than:
A. Chloride ion B. Fluoride ion
C. Nitride ion D. Phospide ion
- Q.41 Which one of the following properties decreases down the group in the periodic table
A. Basic character B. Solubility of IA hydroxides
C. Metallic character D. Ionization energy
- Q.42 Select the collection of iso-electronic species among the following
A. H_2O , NH_3 , HF B. Na^+ , Mg^{2+} , Al^{3+}
C. N^{3-} , O^{2-} , F^{-} D. All of the above





CHEMISTRY MDCAT

UNIT-7 (A-SERIES)

TOPICS:-

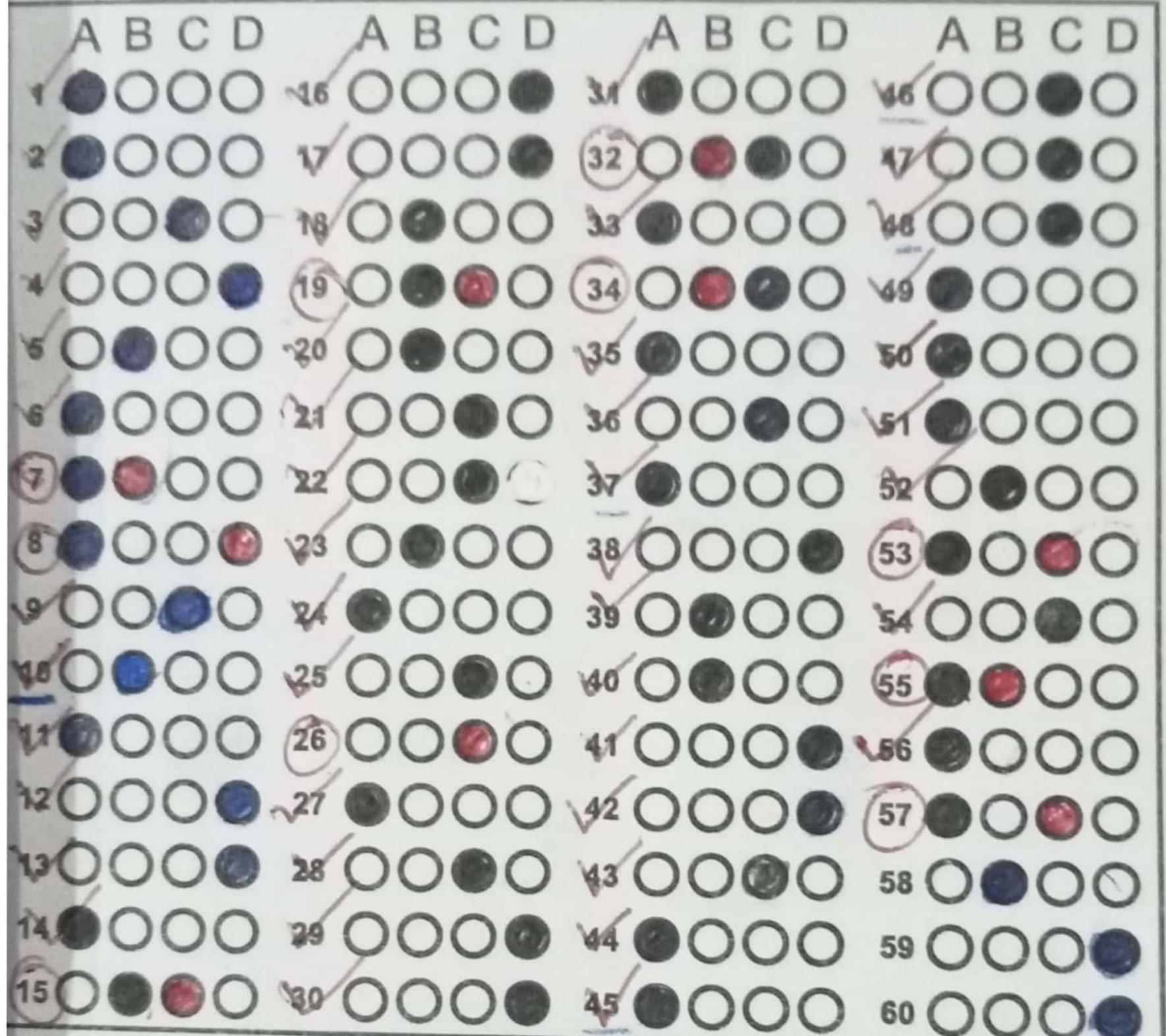
- ✓ **s AND p BLOCK ELEMENTS**
- ✓ **TRANSITION ELEMENTS**

- Q.1** Electrical conductivity of Silicon is greater than all of following except
- A. Sodium
 - B. Chlorine
 - C. Phosphorus
 - D. Sulphur
- Q.2** Melting point of boron is higher than beryllium due to
- A. Boron possess more lattice points
 - B. Boron is p-block element
 - C. Boron is non-metal
 - D. Beryllium is metal
- Q.3** Which oxide among the following when dissolved in water, will turn blue litmus into red
- A. Al₂O₃
 - B. Ga₂O₃
 - C. B₂O₃
 - D. In₂O₃
- Q.4** Lithium shows peculiar behaviour due to following reasons
- A. Small atomic radius
 - B. High charge density
 - C. High ionization energy
 - D. All of the above
- Q.5** Which of following shows diagonal relationship with Lithium
- A. Be
 - B. Mg
 - C. Ca
 - D. Sr
- Q.6** Highest lattice energy is possessed by
- A. BeO
 - B. MgO
 - C. CaO
 - D. SrO
- Q.7** Transition element which is restricted to only one type of oxidation state
- A. Sc
 - B. Zn
 - C. Cr
 - D. Ni
- Q.8** Which of the following produces largest number of anions on dissociation
- A. Triammine trichloro platinum(IV)chloride $\left[Pt\left(NH_3\right)_3Cl_3\right]Cl$
 - B. Tetraammine dichloro platinum(III)chloride $\left[Pt\left(NH_3\right)_4Cl_2\right]Cl$
 - C. Pentaammine chloro platinum(III)chloride $\left[Pt\left(NH_3\right)_5Cl\right]Cl$
 - D. Hexammine platinum(III)chloride $\left[Pt\left(NH_3\right)_6\right]Cl_3$
- Q.9** Mn²⁺ is more paramagnetic as compared to Fe²⁺. This is because of
- A. More unpaired electrons in Fe²⁺
 - B. Partially filled d-subshell of Mn²⁺
 - C. More unpaired electrons in Mn²⁺
 - D. Partially filled d-subshell of Fe²⁺
- Q.10** The factors which not decide the shape of transition metal complexes
- A. Coordination number
 - B. Charge on sphere
 - C. Hybridization
 - D. None of these
- Q.11** In periodic table, the period number tells the
- A. Number of shells
 - B. Electronic configuration
 - C. Metallic character
 - D. Photon
- Q.12** In each period, the highest melting point is shown by elements of IVA group due to
- A. Giant structure
 - B. Largest number of binding electrons
 - C. Non-metallic nature
 - D. Both A and B
- Q.13** Select the best electrical conductor among the followings
- A. Sodium
 - B. Copper
 - C. Aluminium
 - D. Silver

- Q.14** The lowest ionization energy is property of _____ elements in each period of periodic table
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- Q.15** An element "X" burns in air with pale green flame, identify the X from the following
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- The graph plots a physical property against the atomic number of the third-period elements. The x-axis is labeled with the numbers 11, 12, 13, 14, 15, 16, 17, and 18. The curve starts at a low value for silicon (14), rises sharply to a peak, and then falls back towards the baseline. To the right of the graph, the elements are labeled: N, O, F, P.
- What physical property is plotted in this sketch?
A. Ionic radius B. Melting point
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- Q.40 The ionic radius of oxide ion is greater than:
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CHEMISTRY MDCAT

UNIT-8 (A-SERIES)

TOPIC:

- ✓ FUNDAMENTAL PRINCIPLES OF ORGANIC CHEMISTRY
- ✓ CHEMISTRY OF HYDROCARBONS

- Q.1** Which of the following compounds have secondary carbon only
- A. n-Butane
 - B. Iso-butane
 - C. Cyclobutane
 - D. Propane
- Q.2** $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{COOH}$ have a chain isomer, identify that
- A. $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{COOH}$
 - B. $\text{CH}_3\text{CH}_2\text{CH}_2\text{COO CH}_3$
 - C. $\text{CH}_3(\text{CH}_2)_3\text{COOH}$
 - D. $\text{CH}_3\text{CH}_2 \text{COO CH}_2\text{CH}_3$
- Q.3** Ester functional group is represented as
- A. -COOH
 - B. -COO-
 - C. -OH
 - D. -CHO
- Q.4** During initiation step for chlorination of methane, the bond that undergoes homolytic cleavage to produce free radical is
- A. Cl-Cl
 - B. O-H
 - C. C-C
 - D. H-H
- Q.5** Number of sigma bonds in ethane formed by sp^3 - sp^3 overlap are
- A. 1
 - B. 2
 - C. 3
 - D. 4
- Q.6** Alcohol on dehydration gives alkene; which of the following alcohol does not give alkene on dehydration.
- A. $\text{CH}_3\text{CH}_2\text{OH}$
 - B. $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$
 - C. $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
 - D. CH_3OH
- Q.7** When ethene is polymerized, polyethene is formed, mark correct statement about this reaction
- A. No pi bond in polyethene
 - B. Each C is sp^3 hybrid
 - C. Molecular mass of polyethene is multiple of ethene
 - D. All are correct
- Q.8** When benzene is treated with CH_3Cl in the presence of AlCl_3 , Toluene is the product, new bond formed is
- A. C-C
 - B. C-O
 - C. O-O
 - D. O-H
- Q.9** 2,2,3,3 tetrabromobutane when treated with Zn in the presence of CH_3OH , product formed is
- A. Butane
 - B. 2-Butene
 - C. 1-Butyne
 - D. 2-butyne
- Q.10** In Electrophilic addition reaction of alkyne
- A. No change of hybridization occurs
 - B. No change of molecular mass occurs
 - C. Pi bond is converted into sigma bond
 - D. All are correct
- Q.11** The central carbon atom of methyl free radical contains
- A. 6-electrons
 - B. 8-electrons
 - C. 7-electrons
 - D. 3-electrons
- Q.12** All of the following alkene adds HBr , and gives a product according to Markownikov's rule except
- A. Propene
 - B. 1-Butene
 - C. 3-Methyl-1-butene
 - D. 2,3-Dimethyl-2-butene
- Q.13** The IUPAC name of divinyl acetylene is
- A. 1,5-Hexadiene-3-yne
 - B. 1,4-Pentadiene
 - C. 1,5-Hexadiene
 - D. None of the above

- Q.14** For most of the alkenes the heat of hydrogenation for each double bond is
 A. 80kJ/mol B. 120kJ/mol
 C. 150kJ/mol D. 60kJ/mol

Q.15 Which reagent is used to differentiate between 1-Pentyne and 2-Pentyne
 A. Ammoniacal silver nitrate B. Ammonical cuprous chloride
 C. Soda amide D. All of these

Q.16 Which one of the following is polycyclic aromatic hydrocarbons
 A. p-Diphenyl benzene B. Anthracene
 C. Biphenyl D. All of these

Q.17 Ethyl phenyl ketone is produced by reaction of benzene with _____ in presence of AlCl_3
 A. Ethanoyl chloride B. Propyl chloride
 C. Ethyl chloride D. Propanoyl chloride

Q.18 Chemical formula of benzyl chloride is
 A. $\text{C}_6\text{H}_5\text{CH}_2\text{Cl}$ B. $\text{C}_6\text{H}_5\text{CHCl}_2$
 C. $\text{C}_6\text{H}_5\text{CCl}_3$ D. $\text{C}_6\text{H}_5\text{COCl}$

Q.19 Total number of carbon atoms in Phenanthrene are
 A. 12 B. 16
 C. 18 D. 14

Q.20 In 1,4-Pentadiene the ratio of σ and π bonds are
 A. 7 : 1 B. 6 : 1
 C. 1 : 6 D. 1 : 7

Q.21 Saturated hydrocarbons show chain isomerism and the first hydrocarbon which show this phenomenon has at least _____ carbons
 A. 2 B. 3
 C. 4 D. 5

Q.22 3,4-Dibromohexane + 2KOH $\xrightarrow{\text{Alcohol}}$ Y + 2KBr + 2H₂O, what is "Y" in given reaction
 A. 2-Hexene B. 3-Hexene
 C. 2-Hexyne D. 3-Hexyne

Q.23 Imino group is present in
 A. CH_3NH_2 B. HCONH_2
 C. $\text{CH}_2 = \text{NH}$ D. $(\text{NH}_2)_2\text{CO}$

Q.24 Which one of the following compounds is heterocyclic?
 A. Anthracene B. Phenol
 C. Pyridine D. Aniline

Q.25 Which of the following is saturated hydrocarbon?
 A. C₂H₂ B. C₂H₄
 C. C₂H₆ D. C₂H₂Br₂

Q.26 Which of the following can show metamerism
 A. Acetone B. 2-Pantanone
 C. Butanone D. All of these

Q.27 All can be used as dehydrating agents for dehydration of alcohols except
 A. Al₂O₃ B. Dilute H₂SO₄
 C. P₄O₁₀ D. All of these

Q.28 $2\text{CH}_3\text{CH}_2\text{OH} \xrightarrow[\text{100°C}]{\text{conc. H}_2\text{SO}_4}$? Identify the product
 A. Diethyl ether B. Dimethyl ether
 C. Ethanal D. Ethene

Q.29 In the addition of HBr to propene, which one will be added first
 A. H⁺ B. Br⁻
 C. Br⁺ D. H^{*}

- Q.30 Least reactive compound towards electrophilic substitution reaction**
- A. Chlorobenzene B. Phenol ↑
 C. Benzene D. Benzoic acid.
- Q.31 The conversion of benzene to chlorobenzene is an example of _____ reaction.**
- A. Electrophilic addition B. Nucleophile addition
 C. Electrophilic substitution D. Nucleophile substitution
- Q.32 IUPAC name of the compound $\text{HC} \equiv \text{C}-\text{CH}_2-\text{CH}=\text{CH}_2$**
- A. 1-Penten-4-yne B. 4-Penten-1-yne
 C. 2-Penten-3-yne D. 1-Pentyn-2-ene
- Q.33 Which isomerism is possible for 2-Chloro-3-methylbutane**
- A. Functional group isomerism B. Metamerism
 C. Cis-trans isomerism D. Positional isomerism
- Q.34 The order of reactivity of halogens when they react with alkanes**
- A. $\text{I}_2 > \text{F}_2 > \text{Cl}_2 > \text{Br}_2$ B. $\text{I}_2 > \text{Cl}_2 > \text{Br}_2 > \text{F}$
 C. $\text{I}_2 > \text{Br}_2 > \text{Cl}_2 > \text{F}_2$ D. $\text{I}_2 < \text{Br}_2 < \text{Cl}_2 < \text{F}_2$
- Q.35 Which of the following compounds will exhibit cis-trans (geometrical) isomerism**
- A. 1-Butene B. 2-Butyne
 C. Propene D. 2-Butene
- Q.36 Alkanoic acid and alkyl alkanoate are _____ isomers of each other**
- A. Chain B. Positional
 C. Functional group D. Metamerism
- Q.37 $\text{CH}_3\text{CH}_2\text{Cl} \longrightarrow \text{CH}_2=\text{CH}_2$, _____ reagent is used for the reaction**
- A. Aq. KOH B. Alc. KOH
 C. ZnCl_2 D. P_2O_5
- Q.38 Which of the following reactions confirm the presence of saturation in benzene?**
- A. Chlorination in sunlight B. Catalytic oxidation
 C. Chlorination with FeCl_3 D. Hydrogenation
- Q.39 IUPAC name of Isobutylene is**
- A. 2-Methyl-1-butene B. 2-Methyl-1-propene
 C. 2-Butene D. 2-Methyl-2-propene
- Q.40 Number of chain isomers shown by cyclic hydrocarbon having formula C_4H_8 are**
- A. 2 B. 4
 C. 3 D. 0
- Q.41 The formyl functional group is present in**
- A. Aldehyde B. Ketone
 C. Ester D. Acid anhydride
- Q.42 Which of the following is free radical**
- A. Cl^+ B. NO_2^+
 C. Cl^- D. Cl^\bullet
- Q.43 The hydrocarbon which does not show acidic nature is**
- A. Ethyne B. Propyne
 C. 2-Butyne D. 1-Butyne
- Q.44 Butanone is the product, when 1-butene reacts with H_2O in the presence of $\text{H}_2\text{SO}_4/\text{HgSO}_4$, this reaction proceeds through the formation of**
- A. 1-Butanol B. 2-Butanol
 C. Buten-2-ol D. Buten-1-ol
- Q.45 Acetylene + $2\text{HBr} \longrightarrow \text{X}$, what is "X" in given reaction**
- A. 1,2-Dibromoethane B. 1,1-Dibromoethane
 C. 1,1-Dibromoethene D. 1,2-Dibromoethene
- Q.46 Which of the following is most reactive?**
- A. Butane B. Butyne
 C. Butene D. Benzene



	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D	
1	○	○	●	○		16	○	○	○		31	○	○	●	○	46	○	○	○	
2	●	○	○	○		17	○	○	○	●	32	●	○	○	○	47	○	○	○	
3	○	●	○	○		18	●	○	○	○	33	○	○	○	●	48	○	●	○	
4	●	○	○	○		19	○	○	○	●	34	○	○	○	●	49	●	○	○	
5	●	○	○	○		20	○	●	○	○	35	○	○	○	●	50	○	○	●	
6	○	○	○	●		21	○	○	●	○	36	○	○	●	○	51	○	●	○	
7	○	○	○	●		22	○	○	○	●	37	○	●	○	○	52	○	○	●	
8	●	○	○	○		23	○	○	●	○	38	○	●	○	○	53	●	○	○	
9	○	○	○	●		24	○	○	●	○	39	○	●	○	○	54	●	○	○	
10	○	○	●	○		25	○	○	●	○	40	●	○	○	○	55	●	○	○	
11	○	○	●	○		26	○	●	○	○	41	●	○	○	○	56	●	○	○	
12	○	○	○	●		27	○	●	○	○	42	○	○	●	○	57	●	○	○	
13	●	○	○	○		28	○	○	○	○	43	○	○	●	○	58	○	○	●	
14	○	●	○	○		29	●	○	○	○	44	○	○	●	○	59	○	●	○	
15	○	○	○	●		30	○	○	○	●	45	○	●	●	○	60	○	○	●	

CHEMISTRY MDCAT**UNIT-9 (A-SERIES)****TOPICS** **ALKYL HALIDES** **ALCOHOLS AND PHENOL** **ALDEHYDE AND KETONE**

- Q.1** The alcohol which does not react with Lucas reagent without heating is
 A. Isopropyl alcohol
 B. n-butanol
 C. Sec-butyl alcohol
 D. Tert-butyl alcohol

- Q.2** Select the correct option based on the statements below
 X = Aldehydes are more reactive than ketones in nucleophilic addition reactions
 Y = The magnitude of positive charge present on the carbonyl carbon of aldehydes is more than that of ketones.

- A. Both X and Y statements are true
 B. X is true but Y is false
 C. Y is true but X is false
 D. Both X and Y statements are false

- Q.3** How many dihalogen derivatives of propane are there
 A. Five
 B. Four
 C. Three
 D. Two

- Q.4** The reactivity order of alkyl halides for dehydrohalogenation reactions is
 A. R-F > R-Cl > R-Br > R-I
 B. R-Cl > R-F > R-Br > R-I
 C. R-I > R-Br > R-Cl > R-F
 D. R-Br > R-Cl > R-F > R-I

- Q.5** A compound that can be reduced to the corresponding hydrocarbon by Zn-Hg / HCl is?
 A. Butanoic acid
 B. Butanone
 C. Butanol
 D. Butyl chloride

- Q.6** From the given following compounds $\text{CH}_3\text{CH}_2\text{OH}$, $(\text{CH}_3)_2\text{CHOH}$ and $(\text{CH}_3)_3\text{COH}$. The increasing order of the reactivity of the above compounds towards acid catalyzed dehydration is
 A. $\text{CH}_3\text{CH}_2\text{OH} < (\text{CH}_3)_3\text{COH} < (\text{CH}_3)_2\text{CHOH}$
 B. $(\text{CH}_3)_2\text{CHOH} < (\text{CH}_3)_3\text{COH} < \text{CH}_3\text{CH}_2\text{OH}$
 C. $(\text{CH}_3)_3\text{COH} < \text{CH}_3\text{CH}_2\text{OH} < (\text{CH}_3)_2\text{CHOH}$
 D. $\text{CH}_3\text{CH}_2\text{OH} < (\text{CH}_3)_2\text{CHOH} < (\text{CH}_3)_3\text{COH}$

- Q.7** The reaction of phenol with HNO_3 at room temperature is
 A. Dehydration
 B. Electrophilic substitution
 C. β -Elimination
 D. Nucleophilic substitution

- Q.8** The alcohol that gives carboxylic acids having the same number of carbon atoms is
 A. Primary alcohol
 B. Secondary alcohol
 C. Tertiary alcohol
 D. None of the above

- Q.9** Phenol reacts with bromine in CS_2 at low temperature to give _____?
 A. ortho and para-bromophenol
 B. meta-bromophenol
 C. para-bromophenol
 D. 2,4,6-Tribromophenol

- Q.10** Which of the following contains 2 hydroxyl groups at vicinal positions
 A. Citric acid
 B. Tartaric acid
 C. Lactic acid
 D. Both 'A' and 'B'

- Q.11** Addition product of acetaldehyde and ethyl alcohol is:
 A. Aldehyde
 B. Acetal
 C. Carboxylic acid
 D. Acetone

- Q.12** Dry heating of calcium acetate gives which of the following?
 A. Acetaldehyde
 B. Acetic acid
 C. Acetone
 D. Ethane

- Q.13** Both members of which pair give silver mirror test
 A. Propanone, Butanone
 B. Propanal, ethanal
 C. Propanol, Propanal
 D. Propanoic acid, Formic acid

- Q.14** Crotonaldehyde is an α, β -unsaturated aldehyde formed from an aldol. The aldehyde which is the starting material in this reaction is
 A. Ethanal / Acetaldehyde
 B. Propanal
 C. Propenal
 D. Propanol

- Q.15** Propanone reacts with HCN in basic medium to produce A which on acid hydrolysis give an alpha hydroxyl acid, the compound A is
 A. 2-Hydroxy propanoic acid B. 2-Hydroxy Butanoic acid
 ✓ C. 2-Hydroxy-2-methyl propane nitrile D. 2-Hydroxy-2-methylpropanoic acid
- Q.16** Which one will evolve Hydrogen gas most vigorously with Na metal
 A. 2-methyl-2-propanol B. Methanol
 C. 2-Propanol D. Isopentyl alcohol
- Q.17** Sodium borohydride reduces the _____ bond
 A. C = C B. C ≡ C
 C. C ≡ N D. C = O
- Q.18** Which of the following is easily oxidized to the corresponding carbonyl compound
 A. Propanone B. 2-Hydroxypropane
 C. 2-Methyl - 2 - hydroxypropane D. 1-Butyl alcohol
- Q.19** Aldehydes and ketones can be distinguished from each other by using all except
 A. Sodium nitroprusside test B. Lucas test
 C. Fehling's solution D. Tollen's reagent
- Q.20** Correct name of $C_6H_5COC_6H_5$
 A. Diphenyl ketone B. Benzophenone
 C. Benzoyl benzene D. All are correct
- Q.21** $A \xrightarrow[\text{H}_2\text{SO}_4]{\text{K}_2\text{Cr}_2\text{O}_7} B \xrightarrow{\text{[O]}} \text{CH}_3\text{COOH} + \text{HCOOH}$
 If here "B" is propanone so "A" will be
 A. Ethyl alcohol B. n-Propyl alcohol
 ✓ C. Isopropyl alcohol D. t-Butyl alcohol
- Q.22** Homologous series of both aldehyde and ketones have general formula
 A. C_nH_{2n} B. $C_nH_{2n}O_2$
 C. $C_nH_{2n+2}O$ D. $C_nH_{2n}O$
- Q.23** Which one of the following does not give aldol condensation reaction
 A. Ethanal B. Propanone
 C. Propanal D. Methanal *(α -hydrogen in bold)*
- Q.24** The least reactive carbonyl compound towards nucleophilic addition reactions is
 A. HCHO B. C_2H_5CHO
 C. CH_3CHO D. CH_3COCH_3 *(\rightarrow ketone)*
- Q.25** Which of the following reagent is used to separate and purify carbonyl and non-carbonyl compounds?
 A. HCN B. CH_3MgBr
 ✓ C. $NaHSO_3$ D. H_2O
- Q.26** Which of the following statements is incorrect about ethanal and propanone
 A. Both can be prepared by oxidation of alcohols
 ✓ B. Both gives wine red or orange colour with sodium nitroprusside
 C. Both react with 2, 4-Dinitrophenyl hydrazine reagent
 D. Both give positive iodoform test
- Q.27** Which one of the following is better reducing agent
 A. C_3H_8 B. C_3H_2OH
 ✓ C. CH_3CHO D. CH_3COCH_3
- Q.28** In silver mirror test, aldehydes
 A. Are oxidized to acids B. Are reduced to alcohol
 C. Neither reduced nor oxidized D. Precipitate Ag^+ as $AgCl$
- Q.29** Which one of the following does not contain benzene ring?
 A. Sodium phenoxide B. Picric acid
 C. Phenyl acetate D. Cyclohexanol
- Q.30** The product we get when ethanol is treated with H_2SO_4 at any condition
 A. Ethene B. Diethyl ether
 ✓ C. Water D. All of above
- Q.31** The alcohol which is resistant to oxidation
 A. Rectified spirit B. Isobutyl alcohol
 C. 1-Propanol D. 2-Methyl-2-butanol
- Q.32** Which is considered as structural derivative of water
 A. Alcohol B. Alkyl halide
 C. Esters D. All of above

Q.33 Propanone is formed when

- A. Isopropyl alcohol is treated with acidified $\text{K}_2\text{Cr}_2\text{O}_7$
- B. Propanol reacts with Grignard reagent
- C. Ethanol reacts with NH_3
- D. Ethanol reacts with Ethanoic acid

Q.34 $\text{C}_6\text{H}_5\text{CH}_2\text{OH}$ is the formula of

- A. Phenol
- C. Benzyl alcohol
- B. Phenyl alcohol
- D. Hydroxyl benzene

Q.35 The correct order of acidic strength is

- A. Phenol > p-Nitrophenol > Picric acid
- C. p-Nitrophenol > Phenol > Picric acid
- B. Phenol < p-Nitrophenol < Picric acid
- D. Phenol > p-Nitrophenol = Picric acid

Q.36 In a chemical reaction, $X + Y \rightarrow Z$. If X is an aromatic compound and Z is a product which is white precipitate. What could be X, Y and Z.

	X	Y	Z
A.	Benzene	HNO_3	Nitrobenzene
B.	Toluene	HNO_3	2,4,6-Trinitrotoluene
C.	Phenol	$\text{Br}_2 / \text{H}_2\text{O}$	2,4,6-Tribromophenol
D.	Phenol	$\text{Br}_2 / \text{CS}_2$ low T	2,4,6-Tribromophenol

Q.37 The product formed when Phenol reacts with hydrogen gas in the presence of Ni catalyst at 150°C

- A. Benzene
- C. Toluene
- B. Cyclohexane
- D. Cyclohexanol

Q.38 Conjugate base of phenol have _____ resonating structures

- A. 3
- C. 6
- B. 5
- D. 8

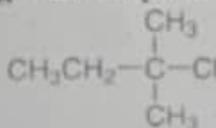
Q.39 All of the following can form iodoform except

- A. 2-Butanol
- C. Ethanal
- B. Phenyl ethanone
- D. 2-Methyl-2-propanol

Q.40 Which one is alkyl halide

- A. CHCl_3
- C. $\text{CH}_2\text{BrCH}_2\text{Br}$
- B. $(\text{CH}_3)_3\text{CBr}$
- D. All of these

Q.41 IUPAC name of the given compound is:



- A. 2-Chloro-2-methylbutane
- C. 3-Chloro-3-methylbutane
- B. 1-Chloro-1,1-dimethylpropane
- D. Iso-pentyl chloride

Q.42 The deciding factor / factors for the reactivity of alkyl halides is/are

- A. Only bond polarity
- C. Electronegativity difference
- B. Only bond energy *bond strength*
- D. Both 'A' and 'B'

Q.43 In alkyl halides, reactivity of C-I bond is maximum than other C-X bond because

- A. C - I bond is least polar
- C. C - I bond energy is minimum
- B. C - I bond is highly polar
- D. I_2 is solid at room temperature

Q.44 Alkyl bromides do not give

- A. Electrophilic Substitution reaction
- C. Nucleophile substitution reaction
- B. β - Elimination reaction
- D. Reaction with ammonia

Q.45 All of the followings are nucleophiles except

- A. CH_4
- C. SO_4^{2-}
- B. $\text{C}_2\text{H}_5\text{OH}$
- D. $\text{C}_2\text{H}_5\text{OC}_2\text{H}_5$

Q.46 The reagent which converts Ethyl chloride to Amino ethane

- A. 1% alkaline KMnO_4
- C. Aqueous KCN
- B. Sodium / ether
- D. Alcoholic NH_3

Q.47 The overall change in state of hybridization of carbon atom when CH_3Br is converted to CH_3OH by Sn_2 mechanism

- A. sp^3 to sp^2
- B. sp^3 to sp
- D. No change in hybridization

- Q.48** Number of steps and substances involved in rate determining steps involved in S_N2 and E2 mechanism are
 A. 1 and 1
 C. 2 and 2
 B. 2 and 1 → S_N1 and E1
 D. 1 and 2
- Q.49** The mechanism in which rate of reaction does not depends upon nature of attacking nucleophile
 A. S_N1 and E2
 C. E1 and E2
 B. S_N2 *S_N1*
 D. S_N1
- Q.50** In E1 mechanism:
 A. Attack of nucleophile and loss of leaving group happens in single step
 B. First step is ionization and second step is attack of electrophile
 ✓ C. First step is ionization and second step is attack of nucleophile
 D. Nucleophile attacks in first step and leaving group leaves in second step
- Q.51** 50% retention of configuration of molecules takes place in
 A. S_N1 reaction
 C. E1 reaction B. S_N2 reaction
 D. E2 reaction
- Q.52** The given reaction belongs to which type:
 $\text{CH}_3\text{CH}_2\text{Br} + \text{CH}_3\text{O}^- \rightarrow \text{C}_2\text{H}_5\text{OCH}_3 + \text{Br}^-$
 A. S_N1 reaction
 C. E1 reaction B. S_N2 reaction
 D. E2 reaction
- Q.53** Complete the given reaction:

$$\begin{array}{ccc} \text{CH}_3 & & \text{alcohol: } \text{KOH} \\ | & & \\ \text{CH}_3 - \text{C} - \text{Br} & \xrightarrow{\text{KOH: ethanol}} & \text{elimination} \\ | & & \\ \text{CH}_3 & & \end{array}$$
- A. $(\text{CH}_3)_3\text{COH} + \text{KBr}$ B. $(\text{CH}_3)_3\text{COK} + \text{Br}_2$
 ✓ C. $(\text{CH}_3)_2\text{C} \equiv \text{CH}_2 + \text{HBr}$ D. $3\text{CH}_3\text{OH} + \text{CH}_3\text{Br}$
- Q.54** If -OH group is attached to a carbon atom which is further attached to a straight chain of three carbon atoms then it is
 ✓ A. Primary alcohol
 C. Tertiary alcohol B. Secondary alcohol
 D. Dihydric alcohol
- Q.55** When an electrophile attacks on alcohol
 ✓ A. O-H bond breaks and alkoxide ion forms
 B. C-O bond breaks and carbocation forms
 C. O-H bond breaks and carbanion forms
 D. It shows dehydration and gives ether
- Q.56** 2-Methyl-1-propanol is
 ✓ A. Primary alcohol
 C. Tertiary alcohol B. Secondary alcohol
 D. Enol product
- Q.57** Alkyl halide gives nucleophile substitution reaction with aqueous KOH and gives reaction with alcoholic ammonia
 ✓ A. Nucleophilic substitution
 ✓ C. Nucleophilic addition B. Electrophilic substitution
 D. Electrophilic addition
- Q.58** What are the products 'A' and 'B' in given reaction.

$$\text{ClCH}_2\text{CH}_2\text{OH} \xrightarrow[\text{180}^\circ\text{C}]{\text{H}_2\text{SO}_4} \boxed{\begin{array}{c} \xrightarrow{\text{140}^\circ\text{C}} \text{A} \\ \xrightarrow{\text{180}^\circ\text{C}} \text{B} \end{array}}$$
- A. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$ and $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$
 B. CH_3CH_3 and CH_3CHO
 ✓ C. $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ and $\text{CH}_2=\text{CH}_2$
 D. CH_3COOH and CH_3OCH_3
- Q.59** The extent of bond formation is equal to extent of bond breakage in rate determining step of
 A. S_N1
 C. S_N1 and E1 B. E1
 D. S_N2
- Q.60** Order of reactivity of alcohol with acetic acid is
 ✓ A. 3°-alcohol > 2°-alcohol > 1°-alcohol
 ✓ C. 3°-alcohol > 1°-alcohol > 2°-alcohol B. 3°-alcohol > 2°-alcohol > 1°-alcohol
 D. 3°-alcohol > 1°-alcohol > 2°-alcohol

CHEMISTRY MDCAT

UNIT-10 (A-SERIES)

TOPICS:-

- ✓ CARBOXYLIC ACID
- ✓ MACROMOLECULES

- Q.1 Which of the following on hydrolysis gives two moles of carboxylic acid**
- A. Acid anhydride B. Acid halide
C. Ethyl acetate D. Acid amide
- Q.2 Not true about Primary structure of proteins**
- A. Peptide bond is formed between N and O
B. Tells sequence of amino acids
C. Tells types of amino acids
D. Tells total number of amino acids in a polypeptide chain
- Q.3 Which of the following is not nucleophilic addition reaction of carboxylic acid**
- A. Esterification B. Amide formation
D. Anhydride formation C. All of the above
- Q.4 Which of the followings cannot be hydrolyzed to carboxylic acid**
- A. Ethanamide B. Ethyl acetate
C. Amino ethane D. Ethanoyl chloride
- Q.5 Acetic acid is highly soluble in water due to**
- A. Hydrogen bonding B. Dimer formation
C. Dipole-Dipole forces D. Both A and B
- Q.6 Melting point of Butanoic acid is greater than**
- A. Ethanoic acid B. Formic acid
C. Pentanoic acid D. Succinic acid
- Q.7 Which of the following esters gives flavour of citrus fruits**
- A. Octyl acetate B. Amyl acetate
C. Butyl acetate D. Formyl acetate
- Q.8 Leaving nucleophile during esterification of carboxylic acids with alcohols is**
- A. H^+ B. RO^-
C. OH^- D. H^-
- Q.9 The class of organic compounds that does not give nucleophilic substitution reactions**
- A. Carboxylic acids B. Alkenes
C. Alcohols D. Alkyl halides
- Q.10 On complete reduction of a carboxylic acid, the alkane formed has carbon atoms**
- A. One less than carboxylic acid B. Equal to carboxylic acid
C. One more than the carboxylic acid D. half of the carboxylic acid
- Q.11 Many enzymes contain a protein part, it is called _____.**
- A. Apoenzyme B. Holoenzyme
C. Co-factor D. Co-Enzyme
- Q.12 Which of the following enzyme has Fe^{+2} ions as a co-Factor**
- A. Chrome oxidase B. Phosphatase
C. Carbonic anhydrase D. Glucose-6-phosphatase
- Q.13 Enzymes in the living systems**
- A. Provide energy B. Provide immunity
C. Transport oxygen D. Catalyze biological reactions
- Q.14 The rate of reaction is directly proportional**
- A. $[\text{Enzyme}]^2$ B. $[\text{Enzyme}]^3$
C. $[\text{Enzyme}]$ D. $[\sqrt{\text{Enzyme}}]$
- Q.15 Which of the following orders of relative strengths of acid is correct.**
- A. $\text{FCH}_2\text{COOH} > \text{ClCH}_2\text{COOH} > \text{BrCH}_2\text{COOH}$
B. $\text{ClCH}_2\text{COOH} > \text{BrCH}_2\text{COOH} > \text{FCH}_2\text{COOH}$
C. $\text{BrCH}_2\text{COOH} > \text{ClCH}_2\text{COOH} > \text{FCH}_2\text{COOH}$
D. $\text{ClCH}_2\text{COOH} > \text{FCH}_2\text{COOH} > \text{BrCH}_2\text{COOH}$

- Q.16** The enzyme useful for treatment of blood cancer in children is
 A. Phospho-transferase B. Carbonic anhydrase
 C. L-asparaginase D. LDH-I
- Q.17** The substance which reduces the enzyme activity
 A. Apoenzyme B. Inhibitor
 C. Activator D. Co-enzyme
- Q.18** Reaction of CH_3COOH with PCl_5 is an example of _____ reaction
 A. Electrophilic substitution B. Electrophilic addition
 C. Nucleophilic substitution D. Nucleophilic addition
- Q.19** Tertiary structure of proteins is due to _____ of polypeptide chain
 A. Sequence of amino acid B. Twisting and folding
 C. Coiling and zig-zagging D. 3D-arrangement
- Q.20** Carboxylic acid can be prepared by action of Grignard reagent with
 A. O_2 B. KCl
 C. N_2 D. CO_2
- Q.21** In presence of acid, hydrolysis of methyl cyanide gives
 A. Acetic acid B. Methylamine
 C. Methyl alcohol D. Formic acid
- Q.22** Carboxylic acid is more acidic than phenol and alcohol because of
 A. Intermolecular H-bonding
 B. Formation of dimers
 C. Highly acidic hydrogen
 D. Resonance stabilization of its conjugate base
- Q.23** Which of the following is electrophilic substitution reaction of carboxylic acid
 A. Amide formation B. Salt formation
 C. Ester formation D. Acid halide formation
- Q.24** Which of the following is correct general formula for homologous series of aliphatic carboxylic acids
 A. $\text{C}_n\text{H}_{2n}\text{O}$ B. $\text{C}_n\text{H}_{2n+1}\text{O}_2$
 C. $\text{C}_n\text{H}_{2n}\text{O}_2$ D. $\text{C}_n\text{H}_{2n+2}\text{O}$
- Q.25** An organic acid "Z" reacts separately with sodium bicarbonate, sodium hydroxide and sodium carbonate. Which one of the following represent the structure of "Z"
 A. HCOOC_2H_5 B. $\text{CH}_3\text{-CH}=\text{CH}_2$
 C. $\text{CH}_3\text{CH}_2\text{OH}$ D. $\text{CH}_3\text{CH}_2\text{COOH}$
- Q.26** Which of the following is not a fatty acid?
 A. Palmitic acid B. Stearic acid
 C. Succinic acid D. Butanoic acid
- Q.27** Which compound is di-protic aliphatic carboxylic acid?
 A. Acetic acid B. Valeric acid
 C. Adipic acid D. Tere-phthalic acid
- Q.28** In the conversion of wine to vinegar
 A. Ethanol is oxidized to acetic acid B. Ethanol is reduced to acetic acid
 C. Methanol is mixed with ethanol D. Ethanol reacts with alkaline I_2
- Q.29** The IUPAC name of terephthalic acid is
 A. 1, 2-Benzenedicarboxylic acid B. 1, 3-Benzenedicarboxylic acid
 C. 1, 4-Benzenedicarboxylic acid D. Benzoic acid
- Q.30** Carboxylic acid evolves CO_2 with
 A. PCl_5 B. SOCl_2
 C. NaHCO_3 D. NaOH
- Q.31** The first step in esterification mechanism is
 A. Nucleophilic addition B. Protonation
 C. Tautomeric proton transfer D. Elimination
- Q.32** Which of the following is not a derivative of carboxylic acid
 A. Acid halide B. Alkanal
 C. Acid amide D. Alkyl alkanoate

- Q.33** The organic compound A and B react with sodium metal and release H₂ gas. A and B react with each other to give ethyl acetate. The A and B are
 A. CH₃COOH and C₂H₅OH B. HCOOH and C₂H₅OH
 C. CH₃COOH and CH₃OH D. CH₃COOH and HCOOH
- Q.34** 2CH₃COOH + M → (CH₃COO)₂M + H₂ what is M?
 A. Na B. K
 C. Ca D. NH₃
- Q.35** Ease of esterification of the following acids with CH₃OH is
 (I) CH₃CH₂COOH, (II) CH₃COOH (III) HCOOH
 A. I > II > III B. III > II > I
 C. II < I < III D. Equal
- Q.36** The O-H bond breaks in carboxylic acid when product is
 A. Salt B. Acid chloride
 C. Ester D. Acid amide
- Q.37** The pH of _____ compound is lowest for same concentration in aqueous solution
 A. Chloroacetic acid B. Ethanoic acid
 C. Ethylamine D. Phenol
- Q.38** In glutaric acid HOOC – (CH₂)_n – COOH, the value of "n" is equal to
 A. 1 B. 2
 C. 3 D. 5
- Q.39** Ethanoic acid reacts with all of these to produce water except
 A. Ethanol B. Caustic soda
 C. Sodium D. Sodium hydrogen carbonate
- Q.40** Acetic acid exists as cyclic dimer in benzene due to _____ with _____ atoms in the ring
 A. Hydrogen bonding, Eight B. Dipole-dipole forces, Eight
 C. Dipole-dipole force, Eight D. Hydrogen bonding, Three
- Q.41** CH₃COOH $\xrightarrow{\text{CaCl}_2}$ W $\xrightarrow{\text{heat}}$ X
 "X" will be _____
 A. Calcium acetate B. Acetone
 C. Acetone oxime D. Ethane nitrile
- Q.42** 2-Butene when heated with alkaline KMnO₄ gives
 A. Formic acid & Acetic acid B. Formic & propanoic acid
 C. Only acetic acid D. All of these
- Q.43** If amyl acetate is added to a liquid, It will develop a flavor of
 A. Banana B. Jasmine
 C. Pineapple D. Orange
- Q.44** During esterification of carboxylic acid with alcohol which bond of carboxylic acid undergo cleavage
 A. C – C B. C = O
 C. C – O D. O – H
- Q.45** Number of methylene group in iso-Butyric acid
 A. 0 B. 1
 C. 2 D. 3
- Q.46** In $\begin{array}{c} \text{CH}_3-\overset{4}{\text{CH}}-\overset{3}{\text{CH}}-\overset{2}{\text{CH}}-\overset{1}{\text{COOH}} \\ | \quad | \quad | \\ \text{CH}_3 \text{CH}_3 \end{array}$ which one is α-carbon atom?
 A. 1 B. 2
 C. 3 D. 4
- Q.47** Propanoic acid liberates CO₂ when reacts with Na₂CO₃. The carbon of CO₂ comes from
 A. Methyl group B. Methylene group
 C. Carboxyl group D. Carbonate ion

Q.48 Carboxylic acids react with active metal to form salts with the evolution of _____ gas

- A. CO₂
- B. H₂
- C. CO
- D. CH₄

Q.49 Which of the following is the strongest acid

- A. Propanoic acid
- B. Ethanoic acid
- C. Methanoic acid
- D. Butanoic acid

Q.50 Which reagent is used to reduce butanoic acid to 1-butanol

- A. H₂/Ni
- B. AgNO₃/NH₄NO₃
- C. KMnO₄/H₂SO₄
- D. LiAlH₄

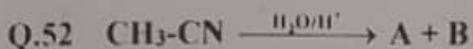


Q.51 What is the common name of this compound

|

Br

- A. β-Bromo butyric acid
- B. α-Bromo Butyric acid
- C. 3-Bromo butanoic acid
- D. Both A and C



What are A and B in the above reaction

- A. CH₃COOH, NH₃
- B. CH₃COO⁻, NH₄⁺
- C. CH₃COOH, NH₄⁺
- D. CH₃COO⁻, NH₃

Q.53 Which of the following is more reactive towards hydrolysis and nucleophilic substitution reaction

- A. Acid halide
- B. Acid anhydride
- C. Acid ester
- D. Acid amide

Q.54 Butanoic acid can be converted into butane by which of the following reagents.

- A. CH₃MgBr
- B. NaOH/CaO
- C. HI/P
- D. LiAlH₄

Q.55 Gelatin is obtained by heating _____

- A. Bones
- B. Skin
- C. Tendons
- D. All of these

Q.56 The primary structure of protein represents

- A. Linear sequence of amino acids joined by peptide bond
- B. 3-dimensional structure of protein
- C. Helical structure of protein
- D. Sub unit structure of protein

Q.57 Which one of the following is example of derived proteins

- A. Albumins
- B. Phosphoproteins
- C. Collagen
- D. Peptones

Q.58 A polypeptide is conventionally called a protein. If it has

- A. Less than 10000(g/mol)
- B. Molar mass more than 10,000(g/mol)
- C. More than 10,000 amino acid units
- D. Molar mass less than 10,000(g/mol)

Q.59 Denaturation of protein is caused by

- A. Changing the temperature
- B. Changing the pH
- C. Intensified light
- D. All of these

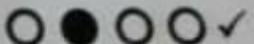
Q.60 The activator of glucose 6-phosphatase is

- A. Fe⁺³
- B. Fe⁺²
- C. Mg⁺²
- D. Ca⁺²

A B C D	A B C D	A B C D	A B C D
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3 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	18 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	33 <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	48 <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>
4 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	19 <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	34 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	49 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
5 <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	20 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	35 <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	50 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
6 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	21 <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	36 <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	51 <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
7 <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	22 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	37 <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	52 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>
8 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	23 <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	38 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	53 <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
9 <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	24 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	39 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	54 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>
10 <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	25 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	40 <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	55 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
11 <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	26 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	41 <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	56 <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
12 <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	27 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	42 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	57 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
13 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	28 <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	43 <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	58 <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>
14 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	29 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	44 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	59 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
15 <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	30 <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	45 <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	60 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>

Roll No.									
<input type="radio"/>									
0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9

1. Use Blue Ball Point Pen Only.
2. Please Fill In The Roll No. Correctly.
3. It Is Important That The Circle Is Filled Completely And Correctly As Shown In The Example Below, Otherwise

Correct Example: 

Incorrect Examples 

SUBJECT: Chem CH/UNIT# 10

NAME: _____

R. NO. (IN WORDS): _____

CLASS: _____ SESSION: _____

SIGN: _____ DATE: _____

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