

**NTSE STUDY MATERIAL
CHEMISTRY - IX**

1. Which one of the following is not a measurable property of a gas []
 a) Volume b) Pressure c) Temperature d) Density
2. The force of attraction between the molecules is maximum in the case of []
 a) Solids b) Liquids c) Gases d) Plasma
3. I. Gases are light []
 II. Gases possess weight .
 In the above given statements
 a) Statement (I) is correct b) statement (II) is correct .
 c) Both statements are correct d) Both statements are wrong
4. The random collisions of the molecules of the gas is the reason for the one of the following []
 a) Volume of the gas b) Pressure of the gas c) Density of the gas d) Mass of the gas
5. Manometer is used to measure []
 a) The pressure of the atmosphere b) The volume of the gas
 c) The pressure exerted by any gas d) The temperature of the gas
6. Decrease in the volume of the same quantity of gas under pressure is known as []
 a) Rigidity b) Fluidity c) Density d) Compressibility
7. The property of diffusion is highly observed in []
 a) Solids b) Liquids c) Gases d) None
8. Boyle's law will be applicable under []
 a) Constant temperature b) Constant volume
 c) Constant pressure d) Constant compressibility
9. The value of absolute zero of temperature is []
 a) Ok b) $-273^{\circ}C$ c) $32^{\circ}F$ d) All
10. Among NH_3 , CO_2 , HCl and O_2 , the rate of diffusion will be maximum in []
 a) CO_2 b) NH_3 c) O_2 d) HCl
11. $\frac{r_1}{r_2} = \sqrt{\frac{d_2}{d_1}}$ is the mathematical expression for []
 a) Boyle's law b) Charles's law c) Graham's law of diffusion d) None
12. The meaning for the term 'atom' is []
 a) Very small b) indivisible c) Cannot be seen d) Great
13. The very first atomic theory was proposed by []
 a) Democritus b) John Dalton c) J.J Thomson d) Ernest Rutherford
14. The number of subatomic particles present in an atom is []
 a) One b) Two c) Three d) Many
15. The pressure to be maintained in the discharge tube for the production of cathode rays is []
 a) 760 mm of Hg b) One mm of Hg c) 76 mm of Hg d) 10 mm of Hg

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16. The mass of the electron is []
 a) $9.10 \times 10^{-28} \text{ gm}$ b) $1.67 \times 10^{-24} \text{ gm}$ c) $1.602 \times 10^{-19} \text{ gm}$ d) Zero gram
17. Select the correct statement from the following []
 a) Electron is 1837 times heavier than proton b) Proton is 1837 times lighter than electron
 c) Electron is 1837 times lighter than proton d) electron and proton have equal mass
18. Under the electric field the anode rays will be deviated towards []
 a) Anode b) Cathode c) North pole d) South pole
19. The size of the nucleus of the atom is in the order of []
 a) 10^{-8} cm b) 10^{-10} cm c) 10^{-13} cm d) 10^{-15} cm
20. The number of neutrons present in ${}^{14}_6\text{C}$ is []
 a) 14 b) 8 c) 6 d) 20
21. The cathode ray particle was named as electron by []
 a) J J Thomson b) Rutherford c) Dalton d) G.J stoney
22. The nucleus of the atom was discovered by []
 a) Rutherford b) J.J Thomson c) Robert Brown d) John Dalton
23. The number of sulphur atoms present in a sulphur molecule under normal condition is []
 a) 2 b) 4 c) 6 d) 8
24. One of the following is not an inert gas []
 a) Fluorine b) Neon c) Argon d) Krypton
25. The number of electrons present in the fourth orbit is []
 a) 32 b) 18 c) 8 d) 16
26. The atom which is highly stable even though it does not have the octet configuration is []
 a) Ne b) Be c) He d) Se
27. I) Molecules have lower energy than that of combined atoms []
 II) Atoms are more stable than molecules
 III) Molecules are more stable than atoms
 In the above statements . The true statements are
 a) I and II b) II and III c) I and III d) All
28. The simple symbols to denote the valence electrons were introduced by []
 a) Niles Bohr b) G.N Lewis c) J.J Thomson d) Dalton
29. The correct electron dot symbol for carbon atom is []
 a) $\times \times \text{C} \times$ b) \times
30. The number of valence electrons and total number of electrons in sodium atom will be []
 a) 8 and 18 b) 1 and 11 c) 8 and 11 d) 1 and 8
31. $\text{Zn} \rightarrow \text{Zn}^{2+} + \text{Ze}^-$. In this equation , zinc is []
 a) Neutralised b) Reduced c) Oxidised d) All
32. The reactant which accepts electron from the other reactant is called []
 a) Catalyst b) Product c) Reluctant d) Oxidant
33. Among the following the compound with a high melting point is []
 a) Chloroform b) Chlorine c) Inethane d) Sodium chloride

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34. The molecule having a triple bond in it is []
 a) O_2 b) N_2 c) Cl_2 d) F_2
35. The bond angle in NH_3 molecule is []
 a) 90° b) 105° c) 107° d) 109°
36. Which one of the following is a non-polar solvent []
 a) Benzene b) Chloroform c) Carbon tetrachloride d) All
37. The element with the highest electro negativity is []
 a) F_2 b) Cl_2 c) Br_2 d) I_2
38. The bond that is formed by the sharing of two pairs of electrons is called []
 a) Single bond b) Ionic c) Double bond d) Triple bond
39. The ions present in magnesium fluoride are []
 a) Mg^{2+} and F^- b) Mg^{2+} and F^+ c) Mg^{2-} and F^+ d) Mg^{2+} and F^{2-}
40. Sodium atom gains the octet configuration and becomes stable by []
 a) Gaining 1 electron b) Losing 1 electron c) Gaining 2 electrons d) Losing 2 electrons
41. The energy released when a new bond is formed is called []
 a) Potential energy b) Kinetic energy c) Bond dissociation energy d) Bond energy
42. The correct method of writing an exothermic reaction is []
 a) $N_2 + 3H_2 \rightarrow 2NH_3$ DH = 22000 calories b) $N_2 + 3H_2 + 22000$ calories $\rightarrow 2NH_3$
 c) $N_2 + 3H_2 \rightarrow 2NH_3 + 22000$ calories d) All the above
43. Which one of the reaction will be endothermic in nature []
 a) Reaction between carbon monoxide and oxygen
 b) Reaction between barium hydroxide and ammonium chloride
 c) Reaction between quicklime and water d) None
44. The bond energy of H-H bond in kilocalorie / mole is []
 a) 104 b) 57.8 c) 103.0 d) 118.3
45. Which statements are true about the exothermic reactions []
 i) During this reaction heat is released
 ii) The energy required to break the bond is less than the energy released during the formation of bond
 a) Statement i b) Statement ii c) Both d) None
46. Energy stored in the molecules is known as []
 a) Heat energy b) Light energy c) Internal energy d) kinetic energy
47. Hydrogen monoxide has the formula of []
 a) H_2O_2 b) H_2O c) HO_2 d) HO
48. The chemical name of FeO is []
 a) Ferrum oxide b) Iron oxide c) Ferrous Oxide d) Ferric oxide
49. $2H_2O \xrightarrow{\text{Electrolysis}} 2H_2 + O_2$ []
 It is considered to be an
 a) Photochemical reaction b) Thermo chemical reaction
 c) Exothermic reaction d) Electro chemical reaction

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50. The gram molecular weight of water molecule is []
 a) 18 grams b) 18 c) 8 grams d) 8
51. The number of carbon dioxide molecules present in 1 mole is []
 a) 60.23×10^{23} b) 6.023×10^{23} c) 6.023×10^{22} d) 60.23×10^{23}
52. The volume occupied by 34 grams of ammonia will be []
 a) 2.24 litre b) 22.4 litre c) 44.8 litre d) 4.48 litre
53. 22 grams of CO_2 means []
 a) 2 moles b) 1 mole c) 0.5 mole d) 0.25 mole
54. At STP, the temperature is to be taken as []
 a) $100^\circ C$ b) $27^\circ C$ c) $10^\circ C$ d) $0^\circ C$
55. Volume – Volume relations use a hypothesis proposed by []
 a) Boyle b) Charles c) Gay – Lussac d) Avogadro
56. Among the following the moderate reaction is []
 a) Burning of magnesium b) Digestion of food
 c) Rusting of iron d) Reaction between Zn and HCl
57. The units for rate of reaction is []
 a) moles / litre / sec b) moles / litre c) Rusting of iron d) Reaction between
58. The rate of the reaction _____ with increase in the concentration of reactants []
 a) Increases b) Decreases
 c) Increases and decreases d) Decreases and increases
59. During the decomposition of potassium chlorate the catalyst used is []
 a) Nickel b) Manganese dioxide c) Sunlight d) All
60. When the temperature increases by $10^\circ C$, the rate of the reaction is []
 a) Decrease b) Double or tripled c) Becomes Zero d) None
61. If the reaction has attained the state of equilibrium, then []
 a) $V_f < V_b$ b) $V_f > V_b$ c) $V_b > V_f$ d) $V_f = V_b$
62. $H_2 + I_2 \rightleftharpoons 2HI$. In this chemical equation the change in pressure []
 a) Does not affect the state of equilibrium b) Favours the forward reaction
 c) Favours the backward reaction d) None
63. The factors which can influence the equilibrium state are []
 a) Concentration b) Pressure c) Temperature d) All
64. Catalyst can be defined as a substance []
 a) Which alters the rate of the reaction rate b) Which initiates the reaction
 c) Which does not alter the reaction rate d) None of the above
65. Malachite is an ore of []
 a) Zinc b) Copper c) Calcium d) Sodium
66. The impurities present in the ore are known as []
 a) Mineral b) Dressing c) Gangue d) None
67. Heating the ore in the absence of air is called []
 a) Concentration b) Smelting c) Roasting d) Calcination

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68. The element which is mostly abundant in the earth's crust is []
a) Oxygen b) Silicon c) Nitrogen d) Iron
69. The formula for haematite is []
a) Fe_2O_4 b) Fe_2O_3 c) Fe_2CO_3 d) FeS_2
70. In the bottom of blast furnace, small holes called tuyers are present. They are useful to []
a) To send the hot air b) To remove the impurities
c) To derive the hot molten iron d) All the above
71. The purest form of iron is []
a) Steel b) Pig iron c) Wrought iron d) Stainless steel
72. The advantage/s of open hearth process is /are: []
a) A regenerative system of heat economy is employed to save the fuel
b) The composition of steel can be controlled easily
c) The steel obtained is of better quality d) All the above
73. The process used to protect the metal from corrosion is []
a) Galvanizing b) electroplating c) Alloying d) All
74. The alloy made by mixing copper and tin is []
a) Brass b) Bronze c) Nichrome d) None
75. The carbon content of steel is []
a) Less than 0.1 % b) Between 0.1% and 1.5 %
c) More than 1.5 % d) 8.6 %

KEY-SHEET

- | | | | | |
|-------|-------|-------|-------|-------|
| 1. D | 2. A | 3. C | 4. B | 5. C |
| 6. D | 7. C | 8. A | 9. D | 10. B |
| 11. C | 12. B | 13. B | 14. D | 15. B |
| 16. A | 17. C | 18. B | 19. C | 20. B |
| 21. D | 22. A | 23. D | 24. A | 25. A |
| 26. C | 27. C | 28. B | 29. A | 30. B |
| 31. C | 32. D | 33. D | 34. B | 35. C |
| 36. D | 37. A | 38. C | 39. A | 40. B |
| 41. D | 42. C | 43. B | 44. A | 45. C |
| 46. C | 47. B | 48. C | 49. D | 50. A |
| 51. B | 52. C | 53. C | 54. D | 55. D |
| 56. B | 57. A | 58. A | 59. C | 60. B |
| 61. D | 62. A | 63. D | 64. A | 65. B |
| 66. C | 67. D | 68. A | 69. B | 70. A |
| 71. C | 72. D | 73. D | 74. B | 75. B |

CLASS X - Atomic Structure – Level - 1

1. As the frequency of the light increases, the momentum of its photon []
A) Increases B) Decreases C) Remains same D) Cannot be predicted
2. The ratio of energy to frequency of electromagnetic radiation is called []
A) Bohr's constant B) Rybberg's constant
C) Planck's constant D) Ritz constant
3. Energy difference between two adjacent orbits is minimum if they are []
A) K, C- Shells B) C, M- Shells
C) M, N – Shells D) N, O -Shells
4. The minimum angular momentum of an electron with the magnetic quantum -1, 0, +1 []
A) $\frac{\sqrt{3}h}{2\pi}$ B) $\frac{h}{\pi}$ C) $\frac{2}{\pi}$ D) $\frac{3h}{\pi}$
5. The radius of the atom is of the order of []
A) 10^{-10} cm B) 10^{-13} cm C) 10^{-15} cm D) 10^{-8} cm
6. Rutherford's experiment, which established the nuclear model of the atom, used a beam of []
A) β - Particles, which impinged on a metal foil and got absorbed
B) λ rays, which impinged on a metal foil and ejected electrons
C) Helium atoms, which impinged on a metal foil and ejected scatters.
D) Helium nuclear, which impinged on a metal foil and got scatters.
7. The first use of quantum theory to explain the structure of atom was made by []
A) Planck B) Einstein C) Bohr D) Heisenberg
8. According to Bohr's theory, the angular momentum of electron in 5th orbit is []
A) $2.5 \frac{h}{\pi}$ B) $25 \frac{h}{\pi}$ C) $1 \frac{h}{\pi}$ D) $10 \frac{h}{\pi}$
9. $mvr = \frac{kh}{2\pi}$ where 'k' is []
A) Principal quantum number B) Azimuthal quantum number
C) Magnetic quantum number D) Spin quantum number
10. Total number of orbitals in 'm' stationary state. []
A) 1 B) 4 C) 9 D) 16
11. The sub energy level having minimum energy is []
A) 3d B) 5p C) 4s D)
12. The azimuthal quantum number of a non-directional orbital is []
A) 0 B) 1 C) -1 D) $m + \frac{1}{2}$
13. The orbital with maximum number of possible orientations []
A) s B) p C) d D) f
14. The quantum numbers $n=3, l=1, m=+1$ and $S=+\frac{1}{2}$ []
A) Na atom B) Al atom C) F atom D) K atom
15. Number of sublevels in fourth orbit []
A) 4 B) 5 C) 8 D) 4
16. An atom 'or' has one 4s electron and five 3d electrons. How many unpaired electrons would be in cr^{+3} . []
A) 1 B) 2 C) 3 D) 4

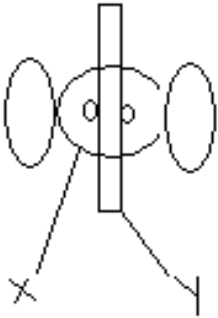
17. If Pauli's exclusion principle is not known, the electronic arrangement of lithium atom is []
 A) $1s^2 2s^1$ B) $1s^1 2s^2$ C) $1s^3$ D) $1s^2 2s^1 2p^1$
18. Number of orbitals used by chromium for filling its electrons is []
 A) 24 B) 4 C) 12 D) 15
19. Units of electron affinity []
 A) eV B) A^0 C) nm D) None
20. Electronic configuration of Cu []
 A) $(Ar) 4s^2 3d^{10}$ B) $(Ar) 4s^2 3d^9$
 C) $(Ar) 4s^2 3d^7$ D) $(Ar) 4s^2 3d^8$

KEY Atomic Structure – Level - 1

- 1) A 2) C 3) D 4) B 5) D 6) D 7) C 8) A
 9) B 10) C 11) C 12) A 13) D 14) B 15) D 16) C
 17) C 18) D 19) A 20) A

ATOMIC STRUCTURE – LEVEL - II

1. The frequency of light with wavelength of 5000 \AA []
 A) $5.996 \times 10^{14} \text{ Hz}$ B) $3 \times 10^{18} \text{ Hz}$ C) $6.8 \times 10^{13} \text{ Hz}$ D) $3.4 \times 10^6 \text{ Hz}$
2. What is the equivalent of the energy unit 1 cm^{-1} in Joule per photon. []
 A) $1.99 \times 10^{-23} \text{ J}$ B) $6.62 \times 10^{-34} \text{ J}$ C) $3.12 \times 10^{-34} \text{ J}$ D) None
3. The possible values of m for an electron with $l=2$? []
 A) $-2, -1, 0, +1, +2$ B) $-1, 0, +1$ C) 1 D) $-3, -2, -1, 0, +1, +2, +3$

4.  (3P orbital) X & y are []

- A) Spherical node, radial node B) Planar node, spherical node
 C) Spherical node, planar node D) None

5. Rutherford's scattering experiment is related to the size of the []
 A) Atom B) Nucleus C) Neutron D) Electron
6. Which electronic level would allow the hydrogen atom to absorb a photon but not emit a photon? []
 A) 3S B) 2 P C) 2 S D) 1 S
7. Which of the following relates to photons both as wave motion and as a stream of particles []
 A) Interference B) $E = mc^2$ C) Diffraction D) $E = h\nu$
8. The electronic configuration of an element is $1S^22S^22P^63S^23p^64S^13d^5$. This represents. []
 A) Excited state B) Ground state C) Cationic form D) Anionic form
9. If the Nitrogen atom had electronic configuration is $1S^7$, It would have energy lower than that of the normal ground state configuration $1S^22S^22P^3$. Because the electrons would be closer to the nucleus, yet $1S^7$ is not observed because it violates. []
 A) Heisenberg uncertainty principle B) Hund's rule
 C) Pauli's exclusion principle D) Bohr's theory
10. The number of radial nodes of 3S and 2P orbitals are respectively []
 A) 2, 0 B) 0, 2 C) 1, 2 D) 2, 1
11. Electronic configuration of S^{-2} is []
 A) (Ne) $3S^23P^6$ B) (Ne) $3S^23P^2$ C) (Ne) $3S^23P^4$ D) (Ne) $3S^23P^5$
12. In an atomic orbital, the sign of lobes indicates the []
 A) Sign of probability distribution B) Sign of charge
 C) Sign of the wave function D) Presence or absence of electron
13. Which of the following atomic orbitals does not have the four lobes lying symmetrically between axial directions []
 A) d_{xy} B) d_{xz} C) d_{yz} D) $d_{x^2-y^2}$
14. The electrons, identified by quantum numbers 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) < (ii) < (iii) < (i) B) (ii) < (iv) < (i) < (iii)
 C) (i) < (iii) < (ii) < (iv) D) (iii) < (i) < (iv) < (ii)
15. With what velocity should an α - particle travel towards the nucleus of a copper atom so as to arrive at a distance $10^{-13}m$ from the nucleus of the copper atom ? []
 A) $8.97 \times 10^6 m/s$ B) $89.7 \times 10^6 m/s$
 C) $0.08 \times 10^6 m/s$ D) $0.009 \times 10^6 m/s$
16. The quantum numbers $+\frac{1}{2}$ and $-\frac{1}{2}$ for the electrons spin represent []
 A) Rotation of the electron in clock wise and anti clock wise direction respectively
 B) Rotation of the electron in Anti clock wise and clock wise direction respectively

- C) Magnetic moment of the electron pointing up and down respectively
 D) Two quantum mechanical spin states which have no classical analogue
17. The sum of the number of neutron and proton in the isotope of hydrogen is []
 A) 6 B) 5 C) 4 D) 3
18. Decrease in Atomic number is observed during []
 A) Alpha emission B) Beta emission
 C) Electron capture D) All the above
19. Hund's rule deals with the distribution of electrons in []
 A) A quantum shell B) An orbit C) An orbital D) Degenerate orbitals
20. Which electronic level allows the hydrogen atom to absorb a photon but not emit a photon []
 A) 2 S B) 3 S C) 2 P D) 3 D
21. Which of the following are example for polyatomic ion ?
 []
 A) CO_3^{-2} B) NH_4^+ C) A & B D) CH_4
22. The orbital $3d_z^2$ is symmetrical about []
 A) X – axis B) Y – axis C) Z – axis D) X Y - axis
23. Neutrino is []
 A) Electron B) Positively charged electron
 C) Proton D) All the above
24. d – orbital are []
 A) Five fold degenerate B) Four fold degenerate
 C) Three fold degenerate D) Two fold degenerate
25. The number of orbitals in a quantum shell is equal to []
 A) n^2 B) n C) l D) $4l+2$

* * *

ATOMIC STRUCTURE – LEVEL - II

1. A 2. A 3. A 4. C 5. A 6. C 7. B 8. A
 9. B 10. A 11. A 12. C 13. D 14. A 15. A 16. D
 17. D 18. D 19. D 20. A 21. C 22. C 23. B 24. D
 25. A

CHEMICAL BOND UNIT – 2(LEVEL-I)

1. Formation of chemical bond result's in []
 A) decrease in energy B) increase of energy C) both A&B D) None

16. Number of π bonds in C_2H_2 molecule []
 A) 3 B) 2 C) 6 D) 4
17. Number of Co-ordinate bonds in $[Fe(H_2O)_6]^{+2}$ []
 A) 6 B) 7 C) 2 D) 3
18. Donor and Acceptor in $[Cu(H_2O)_6]^{+2}$ []
 A) Cu, H_2O B) H_2O , Cu C) Cu, O D) Cu, H
19. Shape of BeF_2 []
 A) Angular B) Pyramidal C) Linear D) Trigonal bipyramidal
20. P – P overlap is present in []
 A) HF B) Cl_2 C) H_2 D) HI

KEY - CHEMICAL BOND UNIT – 2(LEVEL-I)

1. A 2. C 3. A 4. D 5. A 6. A 7. D 8. D 9. C 10. C
 11. B 12. C 13. C 14. A 15. B 16. A 17. A 18. B 19. C 20. B

CHEMICAL BONDING – UNIT – 2(LEVEL-II)

26. During bond formation potential energy of the system. []
 A) Increases B) Decreases C) Remain the same D) Can not predicted
27. CO_2 is iso structural with []
 A) $HgCl_2$ B) $SnCl_2$ C) NH_3 D) NO_2
28. An element 'X' has the ground state electronic configuration 2, 8, 8. The type of bond that exists between the atoms of 'X' is. []
 A) ionic B) covalent C) metallic D) Vanes walli's
29. Modern theory of valency was proposed by []
 A) Kossel B) Lewis C) Kossel and Lewis D) Born - Haber
30. Shape of IF_7 molecule is []
 A) Octahedral B) Pentagonal bipyramidal
 C) Trigonal bipyramidal D) Tetrahedral
31. The bond angle sin PCl_5 molecule are []
 A) 90° , 180° B) 120° , 180° C) 90° , 120° D) 109° , 281° , 120°
32. The coupling between, bare unit of DNA is through []
 A) Hydrogen bonding B) Electrostatic bonding
 C) Covalent bonding D) Vander waali's forces

33. Which one of the following is a correct set []
 A) H_2O , SP^3 angular B) H_2O , SP^2 , linear
 C) NH_4^+ , dSP^2 square planar D) CH_4 , dSp^2 , tetrahedral
34. What is the crystal structure of cesium chloride []
 A) Body centered cubic B) Face centered cubic
 C) Tetrahedral D) Octahedral
35. An element 'M' reacts with chlorine to form a compound X. The bond angle in X is 120° . What is M ? []
 A) Be B) B C) Mg D) N
36. Acetylene has _____ bond. []
 A) $2\delta, 2\pi$ B) $2\delta 3\pi$ C) $3\delta, 2\pi$ D) $3\delta, 3\pi$
37. Which of one of the following molecule contains both ionic and covalent bonds ? []
 A) CH_2Cl_2 B) K_2SO_4 C) BeCl_2 D) SO_2
38. Which of the following statement is correct ? []
 A) The number of electrons present in the valency shell of 'S' in SF_6 is 12
 B) The rates of ionic reaction are very slow.
 C) According to VSEPR theory, SnCl_2 is the linear molecule
 D) The correct order of ability to form ionic compounds among Na^+ , Mg^{2+} , and Al^{3+} is $\text{Al}^{3+} > \text{Mg}^{2+} > \text{Na}^+$
39. Which of the following statement is correct []
 (i) Zn^{++} ion has pseudo inert gas configuration
 (ii) Electrovalency of Fluorine in AlF_3 is three
 (iii) Ease of formation of ions is $\text{Na}^+ > \text{K}^+ > \text{Cs}^+$
 A) Both (i) & (ii) B) Both (ii) & (iii) C) Both (i) & (ii) D) Only (i)
40. Assertion : (A) : Solid NaCl is not an electrical conductor but molten NaCl is a good electrical conductor.
 Reason : (R) The electrical conductivity of an ionic compound is due to the free movement of ions present in it.
 A) Both A and R are true. R is the correct explanation of A
 B) Both 'A' and 'R' are true. R is not the correct explanation of 'A'
 C) A is true. R is false
 D) A is false R is true
41. When three orbitals of two identical atoms overlap, the bonds formed are []
 A) Three sigma bonds B) One sigma and two pi bonds
 C) Three pi bonds D) two sigma and one pi bond
42. Bond angle depends on []
 A) Atomic size B) Hybridisation

10. In Mendeleef's periodic table element 'Tc' belongs to which group []
 A) VI B) V C) II D) I
11. The period that contains only gaseous elements is []
 A) 1 B) 2 C) 3 D) 4
12. Number of outer shells partially filled for representative elements []
 A) Zero B) One C) Two D) Three
13. The element which belongs to 3rd period and IV A group of periodic tables is []
 A) Si B) C C) Ge D) Sn
14. An element of 5f-series but has no electrons filled in 5f – subshell []
 A) Ac B) Ce C) Th D) U
15. 'X' is most inert element and 'Y' is most reactive element in the long form of the periodic table 'X' and 'Y' are respective is []
 A) H, F B) He, F C) He, Cs D) Xe, F
16. Distance between two neighbouring atoms. []
 A) Atomic radius B) bond order C) Bond length D) None of these
17. Atomic radius depends upon []
 A) Number of bonds formed by the Atom B) Nature of the bonding
 C) Oxidation state of the Atom D) All the above
18. If the radius of Fe⁺² is 0.76A⁰ the radius of Fe⁺³ is []
 A) 0.64 A⁰ B) 0.76 A⁰ C) 0.88 A⁰ D) 1.08 A⁰
19. If the ionization potential of Na is 5.48 ev, the IP of K will be []
 A) 4.34ev B) 5.68 ev C) 10.88 ev D) 5.48ev
20. Mulliken scale is applicable to []
 A) monovalent B) Bivalent C) Trivalent D) Tetravalent
21. Mulliken electro negativity values are []
 A) 2.8 greater than pauling scale B) 2.8 less than pauling scale
 C) 3.5 greater than pauling scale D) None of the above
22. Which of the following will have at most positive electron affinity []
 A) Cl B) O C) Mg D) S
23. The less electro positive element is []
 A) Na B) Be C) Li D) Mg
24. The elements present on the left side of the periodic table []
 A) Strong reducing agents B) Oxidising agents
 C) Both D) None of these
25. Units of I.P. []
 A) ev B) K. Cal / mol C) K.J / mol D) All the above

KEY - PERIODIC CLASSIFICATION OF ELEMENTS (LEVEL-1)

- | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|
| 1) C | 2) D | 3) B | 4) C | 5) B | 6) A | 7) A |
| 8) B | 9) B | 10) A | 11) A | 12) B | 13) A | 14) C |
| 15) D | 16) C | 17) D | 18) A | 19) A | 20) A | 21) A |
| 22) C | 23) B | 24) A | 25) B | | | |

PERIODIC CLASSIFICATION – UNIT – 3(LEVEL-II)

1. Which of the following is correct order of ionic radii. []
 A) $\text{Na}^+ < \text{Mg}^{2+} < \text{Al}^{3+} < \text{Si}^{4+}$ B) $\text{Al}^{3+} < \text{Si}^{4+} < \text{Na}^+ < \text{Mg}^{2+}$
 C) $\text{Si}^{4+} < \text{Al}^{3+} < \text{Mg}^{2+} > \text{Na}^+$ D) $\text{Na}^+ > \text{Mg}^{2+} > \text{Al}^{3+} > \text{Si}^{4+}$
2. Let Electro negativity, ionization energy and electron affinity be represented as EN, IP and EA respectively. Which one of the following equation is correct according to Mulliken. []
 A) $\text{EN} = \text{IP} \times \text{EA}$ B) $\text{EN} = \text{IP}/\text{EA}$ C) $\text{EN} = \frac{(\text{IP} + \text{EA})}{2}$ D) $\text{EN} = \text{IP} - \text{EA}$
3. The valence configuration of a transition element is $(n-1)d^{1-10} ns^{1-2}$. Here 'n' may be (i) 1 (ii) 2 (iii) 3 (iv) 4 (v) 5 (vi) 6 (vii) 7. The impossible values of 'n' are. []
 A) iv, v and vi B) vi and vii C) ii, iv & vi D) i, ii & iii
4. Which of the following are the correct statement []
 i) First period is the shortest and sixth period is the longest period
 ii) 4th and 5th periods are short periods
 iii) the incomplete period is seventh period
 iv) the long periods are 4th and 5th periods.
 A) i, iii & iv B) ii & iv C) i & iii D) i, ii, iii & iv
5. An element has nine positive charges in its nucleus its common oxidation state is []
 A) + 7 B) + 5 C) – 1 D) + 1
6. Diagonal relationship is quite pronounced in the elements of []
 A) 2nd & 3rd periods B) 1st and 2nd periods C) 2 & 3 groups D) 3rd & 4th periods
7. Metals exhibiting higher oxidation state is in which block []
 A) P B) S C) d D) f
8. Which of the following elements posses zero electron affinity and zero electronegativity values ? []
 A) halogens B) Alkali metals C) Chalcogens D) rare gases
9. The best oxidising agent among the following is []
 A) Oxygen B) Fluorine C) Sodium D) Copper
10. The Ionisation potential of $X^-_{(g)}$ is numerically equal to []
 A) E.A of $X_{(g)}$ B) E.A of $X^+_{(g)}$ C) E.A of $X^{-2}_{(g)}$ D) E.A of $X^{2+}_{(g)}$

11. A sudden large jump between the values of second and third I.E of an element would be associated with which of the electronic configuration. []
 A) $1S^2 2S^2 2P^6 3S^1$ B) $1S^2 2S^2 2P^6 3S^2 3P^1$ C) $1S^2 2S^2 2P^6 3S^2$ D) $1S^2 2S^2 2P^6 3S^2 3P^3$
12. In the isoelectronic species the ionic radii of N^{3-} , O^{2-} , F^- are respectively given by []
 A) 1.36, 1.40, 1.71 B) 1.36, 1.71, 1.40 C) 1.71, 1.40, 1.36 D) 1.71, 1.36, 1.40
13. Lanthanide contraction is due to []
 A) Low nuclear charge B) More effective shielding by 5f orbitals
 C) Less effective shielding by 4f orbitals D) Inertness of the electron pair in 6S
14. If the quantum number of the highest energy electron in an atom are $n=4$, $l=3$, $m=+3$, $S= + \frac{1}{2}$, the element belongs to. []
 A) p – block B) d – block C) f – block D) s - block
15. From the elements of the following atomic numbers 9, 12, 16, 20, 39, 47 and 56 select representing a group of elements are. []
 A) 9, 16, 39 B) 12, 20, 47 C) 20, 39, 56 D) 12, 20, 56
16. The long form of periodic table is nothing but just a graphical representation of _____ principle. []
 A) Aufbau B) Hund's C) Pauli's exclusion D) Wave mechanics
17. The atomic weights of 'Be' and In were corrected by Mendeleev using the formula. []
 A) $\sqrt{r} = a(z-b)$ B) $mvr = \frac{nh}{2\pi}$
 C) Atomic weight = Equivalent weight X - valency
 D) Equivalent weight = Atomic weight X-valency
18. The atomic number of an element 'X' is '34'. Then the element belongs to []
 A) 4th period & IVA group B) 4th period and VI A group
 C) 4th period and VII A group D) 5th period and VI A group
19. The covalent radius of hydrogen is 0.37 \AA the bond length in H_2 molecule is []
 A) 0.185 \AA B) 0.74 \AA C) 1.48 \AA D) 0.37 \AA
20. The first ionisation energy values of an element are 191, 578, 872 and 5692 K. Cals. The number of valence elements in the element are. []
 A) 5 B) 2 C) 3 D) 4

KEY - PERIODIC CLASSIFICATION – UNIT – 3 (LEVEL-II)

- 1) C 2) C 3) D 4) C 5) C 6) A 7) C 8) D
 9) B 10) A 11) A 12) C 13) C 14) C 15) D 16) A

17) C 18) B 19) B 20) C

ALKALINE EARTH METALS (LEVEL-1)

1. As compared to Alkali metals, alkaline earth metals []
 A) Are more metallic B) Have higher densities
 C) Are stronger reducing D) Have larger atomic radii
2. Metallic magnesium is obtained by []
 A) reduction of MgO with coke B) Electrolysis of aqueous MgCl₂
 C) Electrolysis by Iron from MgCl₂ D) Displacement of magnesium by Iron from MgCl₂ solution
3. Among the Alkaline earth metals, the element forming predominantly covalent compound is []
 A) Ba B) Be C) Sr D) Ca
4. Magnesium is an important component of which biomolecule occurring extensively in living world []
 A) hemoglobin B) ATP C) Chlorophyll D) Vitamin B₁₂
5. Several blocks of Mg are fixed to the bottom of ship to []
 A) Prevent action of water and salt B) Prevent puncturing by under sea rocks
 C) Keep away the sharks D) Make the ship highly
6. Alkaline Earth metals show []
 A) Divalency B) Monovalency C) Variable valency D) Zero valency
7. Magnesium heated in the atmosphere of Nitrogen forms a nitride. The formula of the Nitride is []
 A) Mg₃N B) Mg₃N₂ C) Mg₃N D) Mg₂N
8. A piece of Mg ribbon was heated to redness in an atmosphere of Nitrogen and on cooling water was added the gas evolved was. []
 A) NH₃ B) H₂ C) N₂ D) O₂
9. Carnallite is []
 A) KCl B) CaAl₂(SiO₃)₂ C) MgCl₂ · 6H₂O D) KCl MgCl₂ · 6H₂O
10. Which of the following elements has highest melting point []
 A) Ba B) Sr C) Ca D) Be
11. The Nature of oxide of radium is []
 A) basic B) acidic C) neutral D) Amphoteric
12. BeF₂ is soluble in water, whereas the fluorides of other alkaline earth metals are insoluble because of []
 A) Ionic nature of BeF₂ B) Greater hydration energy of Be⁺²
 C) Covalent nature of BeF₂ D) None
13. Which of the following is most soluble in water []
 A) MgSO₄ B) CaSO₄ C) SrSO₄ D) BaSO₄
14. In the reaction, Be + 2NaOH → A + H₂ A is []
 A) Be(OH)₂ B) BeO C) Na₂BeO₂ D) None of these
15. Anhydrous MgCl₂ may be obtained by heating MgCl₂ · 6H₂O. []
 A) Until it fuses B) With lime C) with coal D) In a current of dry HCl
16. Ordinary black board chalk is made of []
 A) CaCO₃ B) Gypsum C) Fluorspar D) Calcium phosphate
17. The metal that is extracted from sea water []

- A) Mg B) Be C) Ca D) Sr
18. Barium burn is excess of oxygen forming []
 A) Bao B) Ba₂O₂ C) Ba)₂ D) Ba₂O
19. The IP₁ of Be and B respectively are (ev) []
 A) 8.29, 9.32 B) 9.32, 9.32 C) 8.29, 8.29 D) 9.32, 8.29
20. R₁ pening of fruits can be carried Zn presence of []
 A) Na₂SO₄ B) NaCl C) CaCl₂ D) CaC₂
21. Alkaline earth metals are []
 A) A m photene B) reducing a gerf C) Oxidising agent D) Acid
22. The number of covalent bonds formed by 'Be' []
 A) 2 B) 3 C) 4 D) 5
23. Salt used as a purgative is []
 A) NaCl B) MgSO₄ C) MgCl₂.6H₂O D) Ca₃Al₂O₆

KEY - ALKALINE EARTH METALS- Level -1

1. B 2. C 3. B 4. C 5. A 6. A 7. B
8. A 9. D 10. D 11. A 12. B 13. A 14. C
15. D 16. B 17. A 18. C 19. D 20. D 21. A
22. A 23. B

ALKALINE EARTH METALS(LEVEL-II)

1. A substance which give a brickred flame and breaks down on heating giving oxygen and brown gas is []
 A) CaCO₃ B) MgCO₃ C) Mg (NO₃)₂ D) Ca (NO₃)₂
2. Which of the following pairs of substances gives same gaseous product on reaction with water ? []
 A) Na & Na₂O₂ B) Ca & CaH₂ C) Ca & Cao D) Ba & BaO₂
3. Be₂C + H₂O → Beo + x
 CaC₂ + H₂O → Ca(OH)₂ + y
 Mg₂C₃ + H₂O → Mg (OH)₂ + z
 x, y and z are respectively
 A) CH₄, C₂H₂, C₃H₈ B) CH₄, C₂H₆, C₃H₈
 C) CH₄, C₂H₂, C₃H₄ D) C₂H₂, C₂H₆, C₃H₄
4. X + C + Cl₂ $\xrightarrow{\text{High Temp}}$ y + Co
 Y + 2H₂O → Z + 2HCl
 Compound y is found in polymeric chain structure and is an electron deficient molecule. The compound y is []
 A) Beo B) BeCl₂ C) Be (OH)₂ D) Be (OH)₂

5. $\text{Mg} \xrightarrow[\text{Heat}]{\text{Air}} x + y \xrightarrow{\text{H}_2\text{O}} z \xrightarrow{\text{H}_2\text{O}} \text{solution} \xrightarrow{\text{C}_4\text{SO}} \text{A}$ substance x, y, z and A are respectively []
- A) Mg_3N_2 , MgO , NH_3 , CUSO_4 , $5\text{H}_2\text{O}$ B) $\text{Mg}(\text{NO}_3)_2$, MgO , H_2 , CUSO_4 , $5\text{H}_2\text{O}$
 C) Mg_3N_2 , MgO , NH_3 , $[\text{Cu}(\text{NH}_3)_4]\text{SO}_4$ D) $\text{Mg}(\text{NO}_3)_2$, MgO , H_2O_2 , CUSO_4 , $5\text{H}_2\text{O}$
6. An Alkaline earth metal gives a salt with Chlorine which is sparingly soluble in water at room temperature but fairly soluble in boiling water. It also forms a sulphate whose mixture with a sulphide of transition metal is called "Lithopone" and is used as a white pigment. The Alkaline earth metal is. []
- A) Ca B) Mg C) Sr D) Ba
7. The hydration energy of Mg^{+2} Ion is []
- A) More than that of Mg^{+3} Ion B) More than that of Na^+ Ion
 C) More than that of Al^{+3} D) More than that of Be^{+2} Ion
8. A metal 'M' readily forms water soluble sulphate and water insoluble hydroxide, $\text{M}(\text{OH})_2$. It's oxide Mo , is amphoteric, hard and possesses high melting point. The hydroxide is also Amphoteric in nature. The alkaline earth metal 'M' must be. []
- A) Be B) mg C) Ca D) Ba
9. A sodium salt on treatment with MgCl_2 gives white precipitate on heating. The anion of the sodium salt is. []
- A) HCO_3^- B) CO_3^{-2} C) SO_4^{-2} D) NO_3^-
10. The formula of a compound of Ca, C and N used as a fertilizer is []
- A) $\text{Ca}(\text{CN})_2$ B) CaCN_2 C) $\text{Ca}(\text{CN})_2 + \text{C}$ D) $\text{CaCN}_2 + \text{C}$
11. Formula of hydro lith []
- A) CaH_2 B) BaSO_4 C) CaCl_2 D) $\text{Ca}(\text{OH})_2$
12. Formula of sylvine []
- A) KCl B) NaCl C) CaSiO_3 D) $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$
13. Which alkaline earth metal forms a well known synthetic reagent for organic compound []
- A) Be B) Mg C) Ca D) Sr
14. Which reagent is used to analyse Ca^{+2} and Mg^{+2} quantitatively. []
- A) EDTA B) RMgX C) LiAlH_4 D) None
15. Philips milk of magnesia is []
- A) $\text{Mg}(\text{OH})_2$ B) $\text{Be}(\text{OH})_2$ C) $\text{Ca}(\text{OH})_2$ D) $\text{Ba}(\text{OH})_2$
16. The compound which having more lattice energy ? []
- A) SrCl_2 B) CaCl_2 C) MgCl_2 D) BeCl_2
17. Which is more reactive (with H_2O) []
- A) Beo B) Mgo C) Cao D) None
18. Crystal structure of Be []
- A) hcp B) ccp C) b.c.c. D) fcc

19. Formula of hydrone []
 A) Mg (ClO₄)₂ B) MgCO₃ C) MgO D) MgCl₂
20. The substance not likely to contain CaCO₃ is. []
 A) dolomite B) sca shell C) cacined gypsum D) marble statue

ALKALINE EARTH METALS (LEVEL-II)

- 1) C 2) B 3) C 4) B 5) C 6) D 7) B 8) A
 9) A 10) D 11) A 12) A 13) B 14) A 15) A 16) D
 17) C 18) A 19) A 20) C

SOLUTIONS – UNIT – 5(LEVEL-I)

1. A solution of known concentration is known as []
 A) molar solution B) normal solution C) mole solution D) standard solution
2. Which is a true solution []
 A) NaCl in SO₂ B) Cu in Ag C) Salt in petrol D) Mud in water
3. A molar solution is one that contains, one mole of a solute in []
 A) 1000 gm of the solvent B) one litre of the solvent
 C) One litre of the solution D) 22.4 litres of the solution
4. Molarity of 4% $\left(\frac{w}{v}\right)$ solution of NaOH is []
 A) 0.1 B) 0.5 C) 0.001 D) 1.0
5. If 36.0 gr of glucose is present in 400 ml of solution, molarity of the solution is []
 A) 0.05 M B) 11.0 M C) 0.5 M D) 2.0 M
6. Amount of sulphuric acid present in 400 ml of 0.1 M acid solution is. []
 A) 2.45 gm B) 3.92 gm C) 4.9 gr D) 9.8 gr
7. The number of moles of solute present in 2 lits of 0.5 M NaOH solution is []
 A) 2 B) 1 C) 4 D) 0.1
8. 10 milli moles of solute is present in the following volume of 0.08 M solution. []
 A) 25 ml B) 625 ml C) 500 ml D) 100 ml
9. The molarity of 15% $\left(\frac{w}{v}\right)$ solution of H₂SO₄ of density 1.1 g/cc is approximately. []
 A) 1.2 B) 1.4 C) 1.8 D) 1.68
10. Number of moles in 1 litre of pure water 4⁰C []
 A) 18 B) 55.55 C) 5.55 D) 36
11. 0.004 M Na₂SO₄ is isotonic with 0.01 M glucose. Degree of dissociation of Na₂SO₄ is []
 A) 75% B) 50% C) 25% D) 85%
12. What is the molarity of 13% solution (by weight) of sulphuric acid with density of 1.05 g/ml. []

- A) 1.35 M B) 13.5 M C) 0.135 M D) 0.00135 M
13. How many moles of electron weigh one kilogram ? []
- A) 6.023×10^{23} B) $\frac{1}{9.105} \times 10^{31}$ C) $\frac{6.023}{9.018} \times 10^{54}$ D) $\frac{1}{9.108 \times 6.023} \times 10^8$
14. How many milli litres of 0.5 M H_2SO_4 are needed to dissolve 0.5 gr CuCO_3 ? []
- $\text{CuCO}_3 + \text{H}_2\text{SO}_4 \rightarrow \text{CuSO}_4 + \text{H}_2\text{O} + \text{CO}_2$
- A) 8.097 ml B) 80.97 ml C) 800.9 ml D) None
15. Units for weight present []
- A) gm of solute / 10 gm of solun B) gm of solute / litres of solution
- C) moles of solute / liters of solution D) moles of solute / kilo grams of solvent
16. Concentration of solution is []
- A) Intensive property B) Extension property
- C) Both D) None
17. A laboratory bottle is labeled 12M HCl. How would you make from this 20. C.C of a 3.0 M HCl. Solution. []
- A) By addition of 0.5 C.C of water
- B) By addition of 5 C.C of water
- C) By addition of 50 C.C
- D) None of these
18. $3 \text{Cl}_2 + 6 \text{NaOH} \rightarrow 5 \text{NaCl} + \text{NaClO}_3 + 3\text{H}_2\text{O}$. How many liters STP of Cl_2 gas will react with 75 C.C of 1.6 M NaOH? []
- A) 1.341 B) 13.41 C) 134.1 D) 134/
19. How many milli liters of 0.3N H_2SO_4 are required to neutralize 60 ml of 0.62 N NaOH ? []
- A) 26.9 ml B) 27 ml C) 29 ml D) 40 ml
20. 3.65 gr of HCl are dissolved in 16.2 g of water find the mole fraction of HCl. []
- A) 0.1 B) 0.9 C) 0.2 D) 0.25
21. 12% $\left(\frac{w}{v}\right)$ aqueous solution has a density of 1.2 g/ml. What are the mole fraction of the components? (mol. Wt of solute as 40) []
- A) 0.0476, 0.9524 B) 0.9524, 0.0476 C) 0.5, 0.5 D) None
22. A solution contain 90gr of H_2O , 6.4 gr of methanol and 18.40 gr of glycerol. What is the mole fraction of glycerol. []
- A) 0.037 B) 0.063 C) 0.5 D) 0.1
23. Electrolysis of Aq K_2SO_4 product at cathode. []

- A) H₂ B) O₂ C) 21C⁺ D) SO₄⁻²
24. Electrolysis of Aq CuCl₂ product at cathode. []
- A) Cu B) H₂ C) Cl₂ D) O₂
25. Brine solution is []
- A) NaCl B) Aq. NaCl C) NaOH D) Na₂CO₃

KEY - SOLUTIONS – UNIT – 5 (LEVEL-I)

- 1) D 2) B 3) C 4) C 5) C 6) B 7) B
- 8) A 9) D 10) B 11) A 12) A 13) D 14) A
- 15) B 16) A 17) A 18) A 19) A 20) A 21) A
- 22) A 23) A 24) A 25) B

SOLUTIONS (LEVEL – II)

1. How many types of solutions are formed ? (based on solute and solvent) []
A) 9 B) 6 C) 4 D) 3
2. Copper dissolved in gold is example for []
A) Gaseous B) Liquid solutions C) Solid D) None
3. Ethanol dissolved in water is example for []
A) Liquid solutions B) Solid solutions
C) Gaseous solutions D) None
4. Chloroform mixed with Nitrogen gas. In this solution solute and solvent are []
A) Gas, Gas B) Liquid , gas C) Solid, gas D) Solid, liquid
5. 50 gm of alcohol is added to 50 gm of water. In this solution solute and solvent are []
A) Alcohol, water B) Water, alcohol C) both D) None
6. Chemical name of 'hypo' []
A) Sodium sulphate B) Sodium thiosulphite
C) Sodium thiosulphate D) Sodium tho sulphide
7. Formulae of cerous sulphate []
A) Na₂ S₂ O₃. 2H₂) B) Ce₂ (SO₄)₃. 9H₂O C) CeSO₄ D) CE₂ (SO₄)₃
8. 10 gm of NaCl present in 120 gm of aqueous solution weight percentage is []
A) 8.33 B) 83.3 C) 0.833 D) 0.0833
9. 15ml of hexane is mixed with 45 ml with ml at Cl₄ volume percentage is []
A) 25 B) 35 C) 45 D) 55
10. Calculate the molarity of a solution containing 5 gr of NaoH in 450 ml solution []
A) 0.278 M B) 2.78 M C) 0.0278 M D) 3.5M
11. Calculate molarity of 2.5 gr of CH₃COOH in 75 ml benzene []
A) 0.556 m B) 5.56 m C) 55.6 m D) None
12. A semi molar solution is the one, which contains []
A) 1 mole solute in 2 litres B) 2 moles solute in 2 litres
C) 0.1 mole solute in 1 litre in 1 litre D) 2 moles solute in 2 litres
13. Molarity 4% (w/u) solution of NaoH is []
A) 0.1 B) 0.5 C) 0.001 D) 1.0
14. The mole fraction of NaCl in a solution containing 1 mole of NaCl is 1000 gr at water is []
A) 0.001 B) 0.0177 C) 0.5 D) 0.244
15. A solution contains 1 mole of alcohol and 4 moles of water. The mole fraction of water is []

- A) $\frac{1}{4}$ B) 4 C) $\frac{4}{5}$ D) $\frac{1}{5}$
16. The mole fraction of solute in 10% aqueous NaOH solution is []
 A) 0.1 B) 0.05 C) $\frac{1}{21}$ D) 0.075m
17. Strong electrolyte is []
 A) NaCl B) KOH C) NaNO₃ D) CaCl₂
18. Based on the solubility, solutions are divided into how many types []
 A) 3 B) 1 C) 2 D) 4
19. Which of the following independent on temperature. []
 A) Molarity B) Mole fraction
 C) Solubility D) None
20. Units of molarity []
 A) mol/lit B) mol.ut⁻¹ C) M D) All the above

KEY SOLUTIONS LEVEL - II

- 1) A 2) C 3) A 4) B 5) C 6) C 7) B 8) A
 9) A 10) A 11) A 12) A 13) D 14) B 15) C 16) C
 17) A 18) A 19) B 20) D

Acid, Base and salts – LEVEL-1

1. According to arhenious theory strong acid is []
 A) Acetic acid B) Phosphonic acid C) Carbonic acid D) Sulphuric acid
2. P^H is defined as []
 A) - log [H⁺] B) - log $\frac{1}{[H^+]}$ C) log [H⁺] D) log $\frac{1}{[H^+]}$
3. Methyl orange (indicator) gives the following colour in acidic solution []
 A) Red B) Yellow C) Green D) Blue
4. The heat of neutralization of a solution of a strong base (NaOH) and weak acid (CH₃Coo) is ____ K.cal .mole⁻¹ []
 A) 13.7 B) 13.4 C) 12 D) 13.0
5. What is the P^H of HCl solution whose strength is 0.01 m []
 A) 1 B) 2 C) 3 D) 4
6. _____ is formed when a water molecule gains a proton []
 A) OH⁻ B) H₂ C) H₃O⁺ D) H₃O⁻
7. Which of them is strong acid []
 A) CH₃COOH B) H₃ PO₄ C) Zn (OH)₂ D) H₂SO₄
8. Which of the following is a strong base []
 A) NH₄OH B) Mg (OH)₂ C) Ca (OH)₂ D) KOH
9. Mention the class of compounds that form when metallic oxides react with water. []
 A) Acids B) Bases C) Salts D) Neutral solutions
10. The product of hydrogen ion concentration and hydroxyl ion concentration in water is known as []
 A) Equilibrium constant B) P^H
 C) Ionic product of H₂O D) Solubility product of H₂O
11. Mention the formula of a gas evolved when Na₂CO₃ Salt reacts with HCl acid []

- | | | | | |
|---|---|----------------------------|---|---------|
| A) H ₂ | B) O ₂ | C) CO | D) CO ₂ | |
| 12. Mention the concentration of [OH ⁻] in solution if the concentration of [H ⁺] ions in the same solution at 25°C is 10 ⁻⁵ | | | | [] |
| A) 10 ⁻⁵ | B) 10 ⁻⁷ | C) 10 ⁻⁹ | D) +5 | |
| 13. Mention the hydrolysis product of N ₂ O ₅ | | | | [] |
| A) HNO ₂ | B) HNO ₃ | C) NH ₄ OH | D) H ₂ N ₂ O ₂ | |
| 14. Extent of ionization of water increases with | | | | [] |
| A) Increase in concentration | | B) Increase in dilution | | |
| B) Increase in temperature | | D) None | | |
| 15. The extent of ionization of weak acid increases with | | | | [] |
| A) Increases in concentration | | B) Increases in dilution | | |
| C) Increases in temperature | | D) None | | |
| 16. The unit of Kw | | | | [] |
| A) mole ² / lit | B) mole ² / lit ² | C) mole / lit ² | D) mole / lit | |
| 17. The human body fluid with P ^H >7 | | | | [] |
| A) Gastric juice | B) Saliva | C) Blood | D) Urine | |
| 18. Kw changes with changing | | | | [] |
| A) [H ⁺] | B) [OH ⁻] | C) temperature | D) Pressure | |
| 19. The acidic oxide is | | | | [] |
| A) Na ₂ O | B) MgO | C) CaO | D) SO ₂ | |
| 20. The approximate [H ⁺] value when HCl is added to H ₂ O at 25°C | | | | [] |
| A) 10 ⁻⁴ | B) 10 ⁻⁷ | C) 10 ⁻⁸ | D) 10 ⁻⁴ | |

KEY - Acid, Base and salts-LEVEL-1

- | | | | | | |
|-------|-------|-------|-------|-------|-------|
| 1) D | 2) A | 3) A | 4) A | 5) B | 6) C |
| 7) B | 8) C | 9) B | 10) C | 11) D | 12) C |
| 13) B | 14) B | 15) B | 16) B | 17) C | 18) C |
| 19) D | 20) B | | | | |

ACIDS - BASES - SALTS - LEVEL - II

- | | | | | |
|---|---|---|-----------------------------------|---------|
| 1. The strongest acid of the following is | | | | [] |
| A) HCl | B) H ₂ SO ₄ | C) HClO ₄ | D) H ₃ PO ₄ | |
| 2. Dissociation of H ₃ PO ₃ occurs in _____ stages | | | | [] |
| A) 1 | B) 2 | C) 3 | D) 4 | |
| 3. Which of the given hydride of the nitrogen is acidic in nature ? | | | | [] |
| A) NH ₃ | B) N ₃ H | C) N ₂ H ₄ | D) All of these | |
| 4. Which is tribasic acid ? | | | | [] |
| A) H ₃ PO ₂ | B) H ₃ PO ₄ | C) H ₄ P ₂ O ₇ | D) H ₃ PO ₃ | |
| 5. Identify the species that is amphoteric | | | | [] |
| A) H ⁺ | B) H ₂ P ₄ ⁻ | C) NH ₄ ⁺ | D) CO ₃ ⁻² | |
| 6. C ₆ H ₆ + HNO ₃ $\xrightarrow{H_2SO_4}$ C ₆ H ₅ NO ₂ + H ₂ O in this reaction HNO ₃ is | | | | [] |

- A) Proton donor B) Proton Acceptor C) Amphiprotic C)
Aprotic
7. At 25°C the p^H of a 10^{-8} molar solution of HCl in water is []
A) 8 B) – 8 C) between 7 & 8 D) between 6 & 7
8. Water has $p^{kw} = 13.26$ at 50°C. It's p^H will be []
A) 6 B) 7 C) 6.63 D) 13.26
9. The p^H of 0.1 M acetic acid ($k_a = 1.8 \times 10^{-5}$ M) is []
A) 0.1 B) 1.0 C) 1.87 D) 2.87
10. 10^{-5} M HCl solution at 25°C is diluted 1000 times the p^H of the solution will []
A) be equal to 8 B) lie between 7 & 8
C) lie between 6 & 7 D) remain unchanged
11. The concentration of H_3O^+ of pure water at 90°C is 10^{-6} M. At this temperature, it's p^{kw} will be []
A) 6 B) 12 C) – 6 D) – 12
12. The p^H of 0.1 solution of the following salts increases in the order []
A) NaCl < NH_4Cl < NaCN < HCl B) HCl < NH_4Cl < NaCl < NaCN
C) NaCN < NH_4Cl < NaCl < HCl D) HCl < NaCl < NaCN < NH_4Cl
13. The pink colour of phenolphthalein in alkaline medium is due to []
A) The acidic form of phenolphthalein
B) The anionic form of phenolphthalein
C) OH^- of the base
D) The non – conjugated structure of phenolphthalein
14. Conjugate base of $[Al(H_2O)_6]^{+3}$ is []
A) $[Al(H_2O)_5]^{+2}$ B) $[Al(H_2O)_5OH]^{+2}$
C) $[Al(H_2O)_4(OH)_2]=3$ D) None
15. The amino acid glycine exists predominantly in the form $N^+H_3CH_2Coo^-$. It's conjugate base is []
A) $N^+H_3CH_2CooH$ B) $NH_2CH_2Coo^-$ C) $N^+HCH_2Coo^-$ D) NH_3CHCoo^-
16. p^H of 0.10 M NH_3 solution []
A) 2.87 B) 11.13 C) 14 D) 10
17. If $[H^+] p^H = 3$ for HCl solution what is $[H^+]$ []
A) 3 B) 10^{-3} C) – 3 D) 10
18. What is p^H of a 500 ml aqueous solution containing 0.050 mol. Of NaOH ? []
A) 3 B) 11 C) 13 D) 5
19. p^H range of methyl orange indicator []
A) 0.3 – 18 B) 2.8 – 3.8 C) 2.8 – 4.8 D) 3.8 – 6.1
20. Calculate the p^H of an aqueous solution of 1 M ammonium formate assuming complete dissociation. (p^{ka} of formic acid = 3.8, p^{kb} of ammonia = 4.8)

- A) 7 B) 6.5 C) 2.8 D) 5.6
21. In I_3^- lewis base is []
- A) I_2 B) I_2^+ C) I_2^- D) I^-
22. $SnCl_4 + 2 Cl^- \rightarrow SnCl_6^{2-}$ hybridization of Sn in $SnCl_4$ and $SnCl_6^{2-}$ are respectively []
- A) Sp^3, Sp^3d^2 B) dsp^2 to Sp^3d^2 C) Sp^3, Sp^3d^3 D) Sp^3 to d^2Sp^3
23. The conjugate acid of NH_2^- is []
- A) NH_3 B) NH_2OH C) NH_4^+ D) N_2H_4
24. Which is not an acidic salt []
- A) $NaHSO_4$ B) K_2SO_4 C) $NaHCO_3$ D) $NH_4H_2PO_4$
25. Which is an insoluble carbonate ? []
- A) $NO_2 CO_3$ B) $CaCO_3$ C) K_2CO_3 D) $(NH_4)_2CO_3$

ACIDS - BASES – SALTS - LEVEL – II

- 1) C 2) B 3) B 4) B 5) B 6) B
- 7) C 8) A 9) D 10) C 11) B 12) B
- 13) B 14) B 15) B 16) B 17) B 18) B
- 19) B 20) B 21) D 22) A 23) A 24) B
- 25) B

7. CHEMISTRY OF CARBON COMPOUNDS (LEVEL-I)

1. Which type of coal is having highest percentage of carbon []
- A) Peat B) Lignite C) Anthracite D) Bituminous
2. Alkenes undergo these reaction []
- A) Substitution B) Addition C) Condensation D) Elimination
3. Carbon compounds which react with Tollen's reagent []
- A) Alcohol B) Aldehyde C) Alkane D) Alkene
4. Ketone among the following is []
- A) B) C) D)
5. The C-C bond length in graphite []
- A) 1.2 \AA B) 1.3 \AA C) 1.54 \AA D) 1.42 \AA
6. When acetylene is passed through a red hot tube on polymerization _____ is formed []
- A) C_6H_6 B) C_2H_4 C) C_4H_{10} D) CH_4
7. The ester which removes nail polish []
- A) Ethyl acetate B) Amyl acetate C) Vinegar D) Methyl acetate
8. The domestic gas cylinder contains a mixture of hydrocarbons, predominantly []
- A) Methane B) butane C) propene D) ethane
9. The gas used for artificial ripening of fruits is []
- A) Ethane B) Ethene C) Acetylene D) Methane
10. How is the arrangement of carbon atoms in graphite []

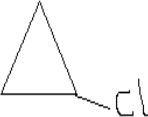
- | | | | | |
|---|---|---|---|---|
| | A) Tetrahedral | B) Hexagonal | C) Petagonal | D) Petagonal & Hexagonal |
| 11. Hydrolysis of Aluminium carbide give | A) Ethane | B) Methane | C) Butane | D) Ethene |
| 12. Allotrope of carbon used as glass cutters | A) Coke | B) Diamond | C) Graphite | D) Carbon black |
| 13. The compound which forms silver mirror when treated with ammonical silver nitrate is | A) Alcohol | B) Aldehyde | C) Ether | D) Ketone |
| 14. The product obtained when ethylene reacts with hydrogen is | A) C ₂ H ₂ | B) C ₂ H ₄ | C) C ₂ H ₆ | D) C ₂ H ₅ OH |
| 15. An example of aromatic hydrocarbon is | A) Ethane | B) Propane | C) Benzene | D) Acetylene |
| 16. Which pair of compound are isomers | A) CH ₃ CH ₂ CH ₃ & CH ₂ =CHCH ₃ | B) CH ₂ =CH ₂ & CH ₃ CH ₃ | C) CH ₃ OCH ₃ & CH ₃ COCH ₃ | D) CH ₃ COH ₃ & CH ₃ CH ₂ CHO |
| 17. Petrol belongs to this group | A) Alkanes | B) Alkenes | C) Alkynes | D) Alkyle |
| 18. The refractive index of diamond is | A) 2.41 | B) 2.81 | C) 1.72 | D) 2.2 |
| 19. CH ₃ -CH ₂ -CH=CH-CH ₃ +O ₃ $\xrightarrow[\text{Zn}]{\text{H}_2\text{O}}$ _____ | A) CH ₃ -CH ₂ -CHO & CH ₃ CHO | B) 2 mole of CH ₃ CH ₂ CHO | C) 2 mole of CH ₃ CHO | D) CH ₃ -CH ₂ -CH=CH-CH ₃ |
| 20. Fehling's test is to detect | A) Ketones | B) Aldehydes | C) Alcohols | D) Amines |

KEY - 7. CHEMISTRY OF CARBON COMPOUNDS (LEVEL-I)

- | | | | | | |
|-------|-------|-------|-------|-------|-------|
| 1) C | 2) B | 3) B | 4) A | 5) C | 6) A |
| 7) A | 8) B | 9) B | 10) B | 11) B | 12) B |
| 13) B | 14) C | 15) C | 16) D | 17) A | 18) A |
| 19) A | 20) B | | | | |

CARBON AND IT'S COMPOUND – (LEVEL-II)

1. Molecule in which the distance between the two adjacent carbon atoms in largest is []
 A) ethane B) ethene C) ethyne D) benzene
2. The IUPAC name of the compound having the formula $H_3C - \overset{CH_3}{\underset{CH_3}{C}} - CH = CH_2$ is []
 A) 3, 3, 3 – triethyl – 1 – propene B) 1, 1, 1 – trimethyl – 2 – propene
 C) 3, 3 – dimethyl – 1 – butene D) 2, 2 – dimethyl – 3 - butene
3. The IUPAC name of the compound H₂C = CH – CH (CH₃)₂ []
 A) 1, 1 – dimethyl – 2 propane B) 2 – Vinyl propane
 C) 3 – methyl – 1 – butene D) 1 – Iso propyl ethene

4. The IUPA name of th  is []

17. 1, 2 – dibromo ethane on heating in presence of zinc gives the following. []
 A) ethane B) ethylene C) Acetylene D) methane
18. Polythene is obtained by the polymerization of []
 A) Styrene B) A mixture of ethylene & styrene
 C) Acetylene D) Ethene
19. Ethylene reacts with Br₂ in CCl₄ to form X when 'X' is reacted with alcoholic KOH. Y is formed. Here X and Y are []
 A) BrCH₂ – CH₂ Br and C₂H₂ B) C₂H₅ Br and C₂H₄
 C) C₂H₅ Br and C₆H₆ D) C₂H₃Br₃ and C₂H₄
20. In the following reaction, A and B respectively are, $A \xrightarrow{HBr} C_2H_5Br \longrightarrow B \longrightarrow A$ []
 A) C₂H₄ and Alcoholic KOH/ Δ B) C₂H₅Cl and Aqueous KOH/ Δ
 C) C₂H₅OH and Aq KOH/ Δ D) C₂H₂ and Br₂
21. $CH_3 - CH_2 Cl \xrightarrow[Alc-KOH]{Alcoholic} A \xrightarrow{Br_2/CCl_4} B \xrightarrow{Zn/Alcohol} C$. C is []
 A) Acetylene B) Ethylene C) Ethane D) Methane
22. $C_2H_5Cl \xrightarrow{Alc-KOH} x \xrightarrow{HBr} y$ compound 'x' is obtained from 'y' by the reaction. []
 A) hydro halogenation B) dehydrohalogenation
 C) halogenation D) dehalogenation
23. Which of the following possess acidic hydrogen []
 A) C₂H₆ B) C₂H₄ C) C₂H₂ D) CH₄
24. (4 n + 2) π electrons represents the following the rule. []
 A) Kekule's B) Huckle's C) Faraday's D) Markonikoff's
25. $CaC_2 + H_2O \rightarrow A + B \xrightarrow{Na} C \xrightarrow{C_2H_5I} D$. D is []
 A) 1 – butene B) Propene C) 1 – pentene D) 1 - butyne
26. Bond length of C – C in benzene []
 A) 1.34 Å⁰ B) 1.39 Å⁰ C) 1.54 Å⁰ D) 1.20 Å⁰
27. The total number of π electrons present in the benzene are []
 A) 2 B) 6 C) 4 D) 14
28. $H - C \equiv C - H \xrightarrow{HCl} A \xrightarrow{Polymerisation} B$ the polymer 'B' is []
 A) ORLON B) PVC C) NYLON D) TEFLON
29. $CaC_2 \xrightarrow{H_2O} A \xrightarrow{Red\ hot\ tube} B \xrightarrow{Cl_2 + FeCl_3} C$ 'C' is []
 A) C₆H₆ B) C₆H₅NO₂ C) C₆H₅Cl D) C₆H₅-SO₃H
30. $C_2H_5OH + Na \rightarrow A + B$ A and B are []
 A) C₂H₅O Na, H₂ B) C₂H₅ONa, $\frac{1}{2}H_2$ C) C₂H₆, H₂ D) C₂H₅ONa, OH

CARBON AND IT'S COMPOUND – (LEVEL-II)

- | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|
| 1) A | 2) C | 3) C | 4) B | 5) B | 6) A | 7) C |
| 8) B | 9) A | 10) D | 11) D | 12) A | 13) B | 14) A |
| 15) D | 16) B | 17) B | 18) D | 19) B | 20) C | 21) A |
| 22) A | 23) C | 24) B | | | | |

Carbohydrates and Proteins-(LEVEL-1)

1. The enzyme which converts glucose into ethyl alcohol and carbon dioxide is []
 A) Zymase B) Invertase C) Diastase D) Maltase
2. When ethyl alcohol reacts with acetic acid _____ is formed []
 A) $\text{CH}_3\text{COOC}_2\text{H}_5$ B) CH_3COOH C) CH_3COCH_3 D) CH_3CHO
3. The dark brown syrupy liquid obtained after removing the sugar crystals is []
 A) Chlorinated liquid B) Brewer's yeast C) Alcohol D) Molasses
4. In the Tollen's test glucose reduces []
 A) Ag metal to Ag^+ ion B) Cu^{+2} ion to Cu metal
 C) Cu^{+2} ion to Cu metal D) Ag^+ ion to Ag metal
5. Which of the following is the sweetest sugar []
 A) Sucrose B) Fructose C) Maltose D) Glucose
6. The process of obtaining polypeptide from amino acids is known as []
 A) Addition polymerisation B) Condensation polymerisation
 C) Hydrogenation D) Fermentation
7. Ethyl alcohol containing pyridine is called []
 A) Rectified spirit B) Absolute alcohol C) Denatured spirit D) Brandy
8. Number of amino acids are present in the human body. []
 A) 62 B) 32 C) 26 D) 23
9. Protein present in nail is []
 A) Keratin B) Haemoglobin C) Collagen D) Insulin
10. A few drops of Iodine is added to an organic acid solution. The solution becomes blue in colour. Then the organic solution contains. []
 A) Starch B) Glucose C) Sucrose D) Fructose
11. Which of the following is used to get absolute alcohol from rectified spirit []
 A) H_2SO_4 B) P_2O_5 C) CaO D) H_2O
12. Steps involved in the purification of sugarcane juice respectively are []

- A) Defecation, carbonation, sulphitation B) Carbonation, defecation, sulphitation
 C) Suphitation, defecation, carbonation D) Defecation, Sulphitation, Carbonation
13. Aldehydes can be distinguished from ketones by using []
 A) Schiff's reagent B) Cone H_2SO_4 C) Anhydroses $ZnCl_2$ D) Resorcinol
14. The tertiary alcohol is []
 A) $(CH_3) CH-CHOH CH(CH_3)_2$ B) $(CH_3)_2 CHO$
 C) $(CH_3)_3 CCH_2OH$ D) $(CH_3)_2 COH CH_3$
15. Starch is []
 A) Monosaccharide B) Oligosaccharide C) disaccharide D) Polysaccharide
16. A polyhydroxy aldehyde []
 A) Glucose B) Fructose C) Sucrose D) None
17. A polyhydroxy ketone []
 A) Glucose B) Fructose C) Sucrose D) None
18. Conversion of milk into curd []
 A) Hydrogenation B) Hydrolysis C) Fermentation D) Defeation
19. Which of the following has 574 amino acids []
 A) Insulin B) Haemoglobin C) Keratin D) Cytokinin
20. CO_2 is the biproduct of []
 A) Sugar industry B) Alcohol industry C) Human industry D) None

KEY - UNIT-8 Carbohydrates and Proteins (LEVEL-I)

- 1) A 2) B 3) D 4) D 5) B 6) A
 7) C 8) C 9) A 10) A 11) C 12) A
 13) A 14) C 15) D 16) A 17) A 18) C
 19) B 20) B

CARBOHYDRATES AND PROTEINS (LEVEL-II)

1. The general formula of carbohydrates are []
 A) $C_nH_{2n+1}O$ B) $C_nH_{2n}O$ C) $C_x(H_2O)_y$ D) $C_n(H_2O)_{2n}$
2. Carbohydrates are []
 A) hydrates of carbon B) polyhydroxy aldehydes or ketones
 C) polyhydroxy acids D) None
3. Which carbohydrates is found most abundantly in nature []

- A) Fructose B) Glucose C) Starch D) Cellulose
4. Milk sugar is []
 A) sucrose B) lactose C) fructose D) glucose
5. Human digestive system does not hydrolyse []
 A) starch B) maltose C) glycogen D) cellulose
6. Which of the following is leaervo rotatory []
 A) Glucose B) Fructose C) Sucrose D) None
7. Which of the following are all disccharides []
 A) Maltose, Sucrose, Lactose B) Maltose, Lactose, Glucose
 C) Glycogen, Lactose, Sucrose D) Starch, maltose, Lactose
8. Mularotation is shown by []
 A) Starch B) Sucrose C) Glucose D) Fructose
9. On hydrysis of starch we get finally []
 A) Glucose B) Fructose C) Glucose & Fructose D) Sucrose
10. The term anomers of glucose refers to []
 A) Iromers of glucose that differ in configuration 'C₁' & 'C₄'
 B) A mixture of D-glucose & L – glucose
 C) Enantiomers of glucose
 D) Isomers of glucose that differ in configuration at C₁
11. Carbohydrates are synthesized in plants by []
 A) photodegradation B) photocyclization
 C) photosynthesis D) photo addition
12. Carbohydrates are used by body mainly []
 A) for obtaining vitamins B) as a source of energy
 C) for building muscles D) for all its development needs
13. The coagulation of protein is called []
 A) Dehydration B) Denaturation C) Deamination D) Decay
14. Enzymes []
 A) Accelerate biochemical reactions
 B) Cosists of aminoacids
 C) Have optimum activity at body temperature D) have the above propeties
15. The function of enzyme in the living system is to []
 A) Transport oxygen B) Provide immunity
 C) Provide energy D) Catalize bio-chemical reactions
16. The essential amino acids are those. []
 A) Which are essential to catalyse reactions. That lead to the formation of peptides
 B) Which cannot be synthesized by animals from other materials in diet
 C) The deficiency of which in the diet prevents growth and may even cause death
 D) As mention in both A & B

17. Which of the following amino acids contains a thiol group in the side chain. []
 A) methionine B) cysteine C) valine D) serine
18. In sickle cell anaemia the basis of malfunction of hemoglobin molecule is []
 A) faulty binding of the hemogruops B) in correct secondary structure
 C) reduced affinity for oxygen D) substitutuion of glutamic acid residue by valine
19. A small non protein part which is associated with the protein part of enzyme and is required for their enzyme activity is called. []
 A) an apozyyme B) a holoenzyme C) a cofactor D) a coenzyme
20. The protein present in hair, hoof and nail is []
 A) Albumin B) Insulin C) Collagen D) Keratin

CARBOHYDRATES AND PROTEINS (LEVEL-II)

- 1) C 2) B 3) D 4) B 5) D 6) B
- 7) A 8) C 9) A 10) D 11) C 12) B
- 13) B 14) A 15) D 16) D 17) B 18) D
- 19) A 20) D

OIL AND FATS (LEVEL-1)

1. The formula of sodium stearate is []
 A) $\text{CH}_2(\text{CH}_2)_{16}\text{OSO}_3\text{Na}$ B) $\text{C}_{17}\text{H}_{35}\text{COONa}$
 C) $\text{H}_2(\text{CH}_2)_{16}\text{OSO}_3\text{Na}$ D) $\text{CH}_3(\text{CH}_2)_{16}\text{OSO}_3\text{Na}$
2. Detergents are more efficient than soaps due to presence of []
 A) Carboxylic acid group B) Sulphonic acid group
 C) Alcoholic group D) Ester group
3. Castor oil is used in the preparation of []
 A) Soaps B) Paints C) Plastics D) Ink
4. A soap can be directly obtained from oils by hydrolysis in the presence of a base. The process is called []
 A) Hydrolysis B) Hydro generation C) Saponification D) Fermentation
5. Shaving soap contains excess of []
 A) Glycerol B) Stericalid C) Perfume D) Detergent
6. The following catalyst is used in the hydrogenation []
 A) Mn B) Fe C) Ni D) Co.
7. The salt present in toilet soaps is []

- A) Na⁺ B) Mg⁺² C) K⁺ D) Li⁺
8. Ca(OH)₂ is used in []
 A) Toilet soap B) Laundry soap C) Greases D) Water proof texture
9. In the heating of oils to prepare soap Cao acts as []
 A) Oxidising agent B) Reducing agent C) Catalyst D) In hibitor
10. The functional group present in fats is []
 A) Aketone group B) An Ester group C) A Peptide group D) An alcohol group
11. An important byproduct of soap manufacture is []
 B) Sodium salt B) Glycorol C) Aids D) Fertilizer
12. Glycerol is a _____ alcohol []
 A) Primary B) Secondary C) Tertiary D) Complex
13. The basic deference between oil and fat is []
 A) Physical state B) Presence of peptide bond
 C) Presence of triple bond D) Presence of double bond
14. Hydrogenation reactions are []
 A) Substitution reactions B) Addition reactions
 C) Fermentation reactions D) Neutralization reactions
15. Quality of soap depends on []
 A) NaOH B) Composition C) Fatty acids D) Quality of base
16. Which of the following can be used as a catalyst while preparing soap during heating of oil. []
 A) NaOH B) KOH C) Z_nO D) Mg CoAl₂
17. Which of the following is a sodium salt of FAS []
 B) CH₃ C₆ H₅ SO₃ Na B) C₈^H₁₀ SO₃ Na C) C₁ H₂₃ – SO₃ Na D)O₂
18. The cation of soap useful for dry cleaning is []
 A) K⁺ B) Na⁺ C) Mg²⁺ D) Triethanol ammonium
19. Deodorant soap contains []
 B) Triethanofammonium B) 3, 4, 5 tribromo salicylanivide C) Steric acid D) None
20. Which of the following is a saturated fatty acid []
 A) Myristoleic acid B) Lauric acid C) Palmitoleic D) Linoteic acid

KEY - UNIT-9 OIL AND FATS(LEVEL-I)

- 1) B 2) B 3) B 4) C 5) B 6) C
 7) C 8) D 9) C 10) B 11) B 12) B

- 13) A 14) B 15) C 16) C 17) C 18) D
 19) B 20) B

OILS & FATS – LEVEL - II

1. The formula of sodium stearate is []
 A) $\text{CH}_3(\text{CH}_2)_3\text{OSO}_2\text{Na}$ B) $\text{C}_{17}\text{H}_{35}\text{CooNa}$
 C) $\text{H}_2(\text{CH}_2)_3\text{OSO}_3\text{Na}$ D) $\text{CH}_3(\text{CH}_2)_{11}\text{OS}_3\text{Na}$
2. Which of the following is a sodium salt of FAS []
 A) $\text{CH}_3\text{C}_6\text{H}_5\text{SO}_3\text{Na}$ B) $\text{C}_8\text{H}_{10}\text{SO}_3\text{Na}$
 C) $\text{C}_{11}\text{H}_{23}\text{SO}_3\text{Na}$ D) $\text{C}_7\text{H}_8\text{SO}_3\text{Na}$
3. An example for an unsaturated fatty acid is []
 A) Lauric acid B) Mylistic acid C) Oleic acid D) Palmitic acid
4. Formula of lauric acid is []
 A) $\text{C}_{17}\text{H}_{35}\text{CooH}$ B) $\text{C}_{17}\text{H}_{33}\text{CooH}$ C) $\text{C}_{17}\text{H}_{29}\text{CooH}$ D) $\text{C}_{11}\text{H}_{25}\text{CooH}$
5. The cation of soap useful for dry cleaning is []
 A) K^+ ammonium B) Na^+ C) Mg^{2+} D) Triethanol
6. Dalda is []
 A) Fatty acid B) Saturated fat C) Unsaturated oil D) Unsaturared fatty acid
7. The salt used in greases is []
 A) K^+ salt B) Na^+ salt C) Li^+ salt D) Mg^{+2} salt
8. Which of the following is not used in soaps and detergents []
 A) NaOH B) $\text{Mg}(\text{OH})_2$ C) $\text{Al}(\text{OH})_3$ D) NH_4OH
9. The substance which does not contain a lipid []
 A) wine B) ground nut oil C) Candle wax D) varnish
10. Sources of stearic acid []
 A) Whale B) Coconut oil C) Butter D) Soyabean
11. Detergents are more efficient than soaps due to presence of []
 A) Carboxylic acid group B) Sulphonic acid group
 C) Alcoholic group D) Ester group

12. Caster oil is used in the preparation of []
 A) Soaps B) Paints C) Plastic D) Ink
13. The group linkage present in fat is []
 A) Ester linkage B) Peptide linkage C) Glycosidic linkage D) None
14. Fats and Oils belongs to the class of []
 A) Alcohols B) Esters C) Carboxylic acid D) Hydrocarbons
15. Bee wax largely consists of []
 A) Mylicyl palmitate B) Cetyl palmitate
 C) Lauryl raulate D) Glyceryl triplamate
16. Chemically digestion is []
 A) Hydrogenation B) Hydrolysis C) Anabolism D) Detrydrogenation
17. The energy store in the cell of living body in the form of []
 A) Fat B) Protein C) Glucose D) ATP
18. Which of the following is a phospholipid []
 A) Lecithin B) Ceptalim C) 3 – phosphotidyl serine D) Allgthere
19. A fat is a []
 A) Polyhydric alcohol B) Monoester of long chain fatty acid and a long chain alcohol
 C) Triester of a glyacid and a long chain fatty acid and is a solid at room temperature
 D) Triester of a glycerol and a long chain fatty acid and is a liquid at room temperature
20. The substances which act as emulsifiers in lipid metabolism []
 A) bile juices B) fatty acids C) amino acids D) sulphonic acid

KEY - OILS & FATS – LEVEL – II

- | | | | | | |
|-------|-------|-------|-------|-------|-------|
| 1) B | 2) C | 3) C | 4) D | 5) D | 6) C |
| 7) C | 8) D | 9) C | 10) C | 11) B | 12) B |
| 13) A | 14) B | 15) A | 16) C | 17) A | 18) D |
| 19) D | 20) B | | | | |

Chemistry and industry – LEVEL-1

1. The natural nutrients are []
 A) C B) H₂ C) O₂ D) All the above

- | | | | |
|-----|--|---|---|
| 2. | The micro nutrients are | [|] |
| | A) Cu B) Mo C) Mn D) All the above | | |
| 3. | Example for nitrogen fertilizer | [|] |
| | A) NH_4NO_3 B) $\text{CaCl}_2 \text{Po}_4\text{I}_2$ C) $\text{NH}_4 \text{H}_2 \text{Po}_4$ D) $\text{NH}_4 \text{I}_2 \text{Po}_4$ | | |
| 4. | Example for single fertilizer | [|] |
| | A) KCl B) $\text{K}_2 \text{SO}_4$ C) NH_4Cl D) A & C | | |
| 5. | Nitrophosk is example for | [|] |
| | A) Single fertilizer B) Mixed fertilizer C) Micro fertilizer D) None | | |
| 6. | Number of carbon atoms in petrol | [|] |
| | A) 4 to 8 B) 3 to 6 C) 5 to 9 D) 10 to 12 | | |
| 7. | LPG gas contains | [|] |
| | A) Propene B) Propane C) Butane D) All the above | | |
| 8. | Colour of petroleum | [|] |
| | A) Dark greenish brown B) Colourless C) Green colour D) More | | |
| 9. | Examples for Nitro dyes | [|] |
| | A) NO_2 B) NO C) N=N D) None | | |
| 10. | Talc is | [|] |
| | A) Magnesium silicate B) Calcium state C) Zinc state D) colloidal clay | | |
| 11. | Nail polish remover is | [|] |
| | A) Acetaldehyde B) Acetone C) Alcohol D) Ether | | |
| 12. | Emulsion is | [|] |
| | A) Liquid in solid B) Solid in liquid C) liquid in liquid D) solid in gas | | |
| 13. | Which is main constituent in the natural fibers | [|] |
| | A) Cellulose B) Glucose C) Sucrose D) Starch | | |
| 14. | Which of the following is natural adhesive | [|] |
| | A) Urea B) Gum- Arabica C) Nylon D) Orlon | | |
| 15. | Uses of nylon 6,6 | [|] |
| | A) Insulation B) Ceiling tiles C) Films D) Elastic hosiery | | |
| 16. | Monomer in PVC | [|] |
| | A) Vinyl chloride B) Ethane C) Cyanide D) None | | |
| 17. | Which type of glass is used in optics | [|] |
| | A) Flint glass B) Pyrex glass C) Hard glass D) Borosilicate glass | | |
| 18. | RAW materials used for glass | [|] |
| | A) Na_2CO_3 B) CaCO_3 C) SiO_2 D) All the above | | |
| 19. | Raw slurry contains _____% water | [|] |
| | A) 40% B) 30% C) 50% D) 60% | | |
| 20. | Glass- blowing is possible with | [|] |
| | A) Flint glass B) Pyrex glass C) Soda glass D) hard glass | | |

KEY - 10. Chemistry and industry LEVEL-1

- 1) D 2) D 3) A 4) D 5) B 6) E

- | | | | | | |
|-------|-------|-------|-------|-------|-------|
| 7) D | 8) B | 9) A | 10) A | 11) B | 12) C |
| 13) A | 14) A | 15) A | 16) A | 17) D | 18) D |
| 19) A | 20) B | | | | |

CHEMISTRY AND INDUSTRY- LEVEL-II

1. IUPAC name of paracetamol []
 A) 4 – hydroxyacetanilide B) P – Amino phenol
 C) Salicylic acid D) Asprin
2. IUPAC name of Aspirin is []
 A) Acetyl salicylic acid B) Salicylic acid acetale
 C) O – acetyl salicylic acid D) All the above
3. Structure of phenacetin []
 A) B) C) D)
4. Dettol is []
 A) chloroxylenol B) terpineol C) mixture of A&B D) None
5. Penicillin is []
 A) Antibiotic B) Antimicrobials C) Disinfectants D) Both A&B
6. Omeprazole and ansoprazole are example for []
 A) Antacids B) Antihistamines
 C) Food preservatives D) Artificial sweetening agent
7. Fat soluble vitamins are []
 A) A B) D C) E D) All the above
8. Water soluble vitamins are []
 A) B B) C C) A & B D) D
9. Transmatic acid is []
 A) Induces cell division B) Open chain dicarboxydic acid
 C) It has one double bond D) All the above
10. Colour of p-hydroxy azobenzene dye is []
 A) yellow B) orange C) red D) blue
11. Name of the dye is []
 A) p-hydroxy Azobenzene B) p-aminoazobenze
 C) p-amido azo benzene D) none
12. In the face powder preparation TiO₂ used for []
 A) Opacity B) Slip C) Adherence D) Absorbency
13. Cold – cream contains []
 A) Almond oil B) Bees wax C) Rose water D) All the above
14. Which of the following is milk protein []

- A) casein B) blood albumin C) starch D) resins
15. Gramophone records contains []
 A) PVC B) Polyethylene C) Polyesters D) Nylon 6, 6
16. Nylon 6, 6 is formed from []
 A) Hexa methylene diamine B) Adipic acid
 C) Both a & B D) Sodium disulphide
17. Empirical formula of rubber is []
 A) C_5H_8 B) C_5H_{10} C) C_4H_8 D) C_6H_{12}
18. 'Clinker cement' contains []
 A) Calcium silicate B) Calcium aluminate
 C) Both A&B D) Gypsum
19. Lowest boiling point compound is []
 A) Petroleum ether B) petrol C) Naptha D) Kerosene
20. Micro fertilizer contains. []
 A) B B) Cu C) Mn D) All the above
21. Formula of potash feldspar []
 A) KA/SIO_8 B) K_2CO_3 C) $K_2SO_4. Al_2(SO_4)_3$ D) none
22. A glaze is a []
 A) Fine powder B) Spark C) Crucible D) none
23. Hard glass contains []
 A) Na_2CO_3 B) K_2CO_3 C) KOH D) H_3BO_3
24. U_2O_3 gives _____ colour to glass. []
 A) Fluorescent greenish yellow
 B) Red C) Purpule D) Blue
25. Flint glass is also called []
 A) Lead glass B) Potash – lime C) Soda – lime D) Borosilicate

C H E M I S T R Y A N D I N D U S T R Y

- 1) A 2) D 3) A 4) C 5) A 6) A
- 7) D 8) C 9) D 1 0) A 1 1) D 1 2) A
- 1 3) D 1 4) A 1 5) A 1 6) C 1 7) A 1 8) C
- 1 9) A 2 0) D 2 1) A 2 2) A 2 3) A 2 4) A
- 2 5) B