

CHAPTER # 1
Periodic Classification of Elements & Periodicity

1. Which of the following pairs are chemically dissimilar?
(A) Na and K (B) Ba and Sr
(C) Zr and Hf (D) Ca and Zn.
2. The total number of inner transition elements is
(A) 10 (B) 14
(C) 28 (C) 30
3. The alkali metal which is liquid at 15°C is
(A) K (B) Cs
(C) Na (D) None
4. Which of the following ion will form most water soluble hydroxide?
(A) K^+ (B) Ni^{2+}
(B) Zn^{2+} (C) Al^{3+}
5. Which of the following has greatest tendency to lose electron?
(A) F (B) Fr
(B) S (C) Be.
6. The oxide of which of the following elements will be acidic in character
(A) Mg (B) Rb
(C) Li (C) Cl
7. Which of the following is isoelectronic with carbon atom?
(A) Na^+ (B) Al^{3+}
(C) O_2^- (D) N^+
8. Which of the following ions are paramagnetic in character?
(A) Zn^{2+} (B) Cu^+
(C) Ni^{2+} (D) Ag^+
9. Ca^{2+} ion is isoelectronic with
(A) Mg^{2+} (B) Na^+
(C) Ar (D) Kr
10. Gradual addition of electronic shells in the noble gases causes a decrease in their
(A) Ionization energy (B) atomic radius
(C) Boiling point (D) density.

D

11. Which of the following has highest first ionization potential?
- (A) Carbon (B) Oxygen
(C) Nitrogen (D) Boron.
12. Which of the following has the smallest size?
- (A) Na^+ (B) Mg^{2+}
(C) Al^{3+} (D) Cl
13. Which of the following element has the maximum electron affinity?
- (A) F (B) S
(C) I (D) Cl.
14. Which of the following is isoelectronic as well as has the same structure as that of N_2O ?
- (A) N_3H (B) H_2O
(C) NO_2 (D) CO_2
15. The atomic radius increases as we move down a group because
- (A) Effective nuclear charge increases
(B) Atomic mass increases
(C) Additive electrons are accommodated in new electron level
(D) Atomic number increase.
16. Which one of the following is an incorrect statement?
- (A) The ionization potential of nitrogen is greater than that of chlorine
(B) The electron affinity of fluorine is greater than that of chlorine
(C) The ionization potential of beryllium is greater than that of boron
(D) The electronegativity of fluorine is greater than that of chlorine.
17. Electron affinity depends on
- (A) Atomic size
(B) Nuclear charge
(C) Atomic number
(D) Atomic size and nuclear charge both.
18. Two elements whose electronegativities are 1.2 and 3.0, the bond formed between them would be
- (A) Ionic (B) covalent
(C) Coordinate (D) metallic.

19. Ionic radii are
- (A) Directly proportional to square of effective nuclear charges
 - (B) Inversely proportional to effective nuclear charge
 - (C) Inversely proportional to square of effective nuclear charge
 - (D) Directly proportional to effective nuclear charge.
20. Which of the following oxides is atmospheric in character?
- (A) CaO
 - (B) CO₂
 - (C) SiO₂
 - (D) SnO₂
21. Mark the correct statement:
- (A) Na⁺ is smaller than Na atom
 - (B) Na⁺ is larger than Na atom
 - (C) Cl⁻ is smaller than Cl atom
 - (D) Cl⁻ and Cl are equal in size
22. Who introduced the zero groups?
- (A) Lothar Meyer
 - (B) Lockery
 - (C) Mendleev
 - (D) Ramsay
23. Element, of group I-B are called
- (A) Representative elements
 - (B) Transition elements
 - (C) Rare earth
 - (D) Coinage metals
24. The element with Z = 24 is placed in the period
- (A) 5
 - (B) 2
 - (C) 3
 - (D) 4
25. Which is the part of metalloids?
- (A) Na and K
 - (B) F and Cl
 - (C) None of these
 - (D) Cu and Au
26. Which one of the following has the maximum electron affinity?
- (A) I
 - (B) Br
 - (C) Cl
 - (D) F
27. On electrolysis of NaH, hydrogen is liberated

- (A) At anode (B) in the electrolyte
(C) At cathode (D) none of them

28. Elements with greater number of electrons have _____ values of ionization energy.
- a) Only one b) More than one
c) Zero d) Infinite
29. Which of the following possess maximum hydration power?
- a) Na^+ b) K^+
c) Mg^{+2} d) Ca^{+2}
30. Higher value of electron affinity means _____
- a. Atom will lose electron easily
b. Atom will gain electron easily
c. Atom may form di-positive ion
d. The reason is unknown
31. Melting points of VII-A group _____ down the group
- a. Increase b. Decrease
c. Remain constant d. No regular trend
32. Oxidation state of an atom represents _____
- a. No. of electrons gained
b. No. of electrons lost
c. No. of electrons gained or lost
d. None of above correctly represent it
33. Mendeleev's periodic table was based on
- a) Atomic number b) Atomic mass
c) Atomic volume d) Electronic configuration
34. Elements present in a same group have the same
- a) Atomic number
b) Molecular weight
c) Chemical properties
d) Electronic configuration
35. "s" and "p" block elements are also called
- a) Transition elements
b) Inert elements
c) Typical elements
d) Rare earth elements
36. What is the symbol of the element with only three electrons and three protons?

- a) Li b) C
c) Ag d) Cu
37. Elements with seven electrons in their valence shell are known as
- a) Inert b) Lanthanides
c) Halogens d) Alkali metals
38. Which of the following pairs of elements are chemically most similar?
- a) Na and Al b) Cu and Cu
c) S and F d) Sc and Zn
39. A student of chemistry will identify positively the following symbols as sodium
- a) $\overset{23}{W}_{11}$ b) $\overset{40}{X}_{19}$
c) $\overset{26}{Y}_{13}$ d) $\overset{32}{Z}_{16}$
40. In the periodic table each period begins with a metal, which is
- a) Most electronegative
b) Most electropositive
c) Less electropositive
d) Less electronegative
41. Which one of the following is not a coinage metal?
- a) Au b) Cu
c) Ag d) Pd
42. Which is the most metallic element of 2nd period?
- a) Lithium b) Beryllium
c) Boron d) Carbon
43. The outer most orbital involved in chemical bonding is called
- a) Molecular orbital b) Complete orbital
c) Valence orbital d) Free orbital
44. Elements, which form basic oxides are
- a) Electropositive b) Electronegative
c) Inert d) None of these
45. Which of the following has the most basic character?
- a) Na_2O b) MgO
c) Al_2O_3 d) P_2O_3

46. Which of the following is smallest in size?
- a) K^{+1} b) O^{-2}
c) F^{-1} d) Na^{+}
47. Ionization energy is lowest for
- a) Inert gases b) Halogens
c) Alkali metals d) Alkaline earth metals
48. An isotope of hydrogen is
- a) Neptunium b) Plutonium
c) Thorium d) Tritium
49. With respect to chlorine, hydrogen will be
- a) Electropositive b) Electronegative
c) Neutral d) None of these
50. Which of the following has the highest electron affinity?
- a) $1S^2 2S^2 2P^3$ b) $1S^2 2S^2 2P^6 3S^1$
c) $1S^2 2S^2 2P^5$ d) $1S^2 2S^2 2P^5$
51. Excluding hydrogen and helium, the smallest elements in the periodic table is
- a) Lithium b) Fluorine
c) Cesium d) Iodine
52. Which halogen has the smallest electron affinity?
- a) F b) Cl
c) Br d) I
53. The element with atomic number 7 is likely to have same properties to the element whose atomic number is
- a) 11 b) 2
c) 15 d) F
54. Which of the following will have largest size?
- a) Br b) I -1
c) I d) F
55. In its chemical properties, calcium is most similar to
- a) Cs b) Cu
c) Sc d) Sr
56. Which two of the following are iso electronic with one another?

- a) Na⁺ and O b) Na⁺ and K⁺
c) Na⁺ and Ne d) Ne and O
57. Which of the following is a transuranic element?
- a) Americium b) Plutonium
c) Neptunium d) All of these
58. The hydrogen, which is present in the atmosphere of sun and stars in a large amount, is
- a) H₂ b) H
c) H⁺ d) H⁻
59. Cesium and Francium are liquids above
- a) 10°C b) 15°C
c) 20°C d) 30°C
60. In an aqueous solution the hydrides of alkali metals are
- a) Stable b) Unstable
c) No change d) None of these
61. As the atomic number of the halogen increases, the halogens
- a) Lose their outermost electrons less easily
b) Become less dense
c) Becomes lighter in color
d) Gain electrons less easily
62. The electron affinity of fluorine is
- a) – 348.8 kJ/mol b) – 337 kJ/mol
c) 337 kJ/mol d) 348.8 kJ/mol
63. Which ionic halides have high m.p and b.p?
- a) Fluoride b) Chloride
c) Bromide d) Iodide
64. Which gas is used in the making of tungsten bulb filaments?
- a) H₂ b) N₂
c) O₂ d) CO₂
65. The ionic halides in order of decreasing m.p and b.p can be arranged as
- a) Iodide>bromide>chloride> fluoride
b) Bromide>chloride>fluoride>iodide
c) Chloride>bromide>iodide>fluoride
d) Fluoride>chloride>bromide>iodide
66. A hydride ion and helium atom has same number of
- a) Protons b) Neutrons
c) Electrons d) All of these
67. Ionic hydrides are also called

- a) Saline hydrides b) Salt like hydrides
c) Both a & b d) None of these
68. The hydrides are acts as powerful reducing agents are
- a) Ionic b) Covalent
c) Interstitial d) Complex
69. The hydrides which are non stoichiometric in nature are
- a) Ionic b) Covalent
c) Interstitial d) Complex
70. Which one is the example of complex hydride?
- a) PH_3 b) NaH
c) LaH_3 d) NaBH_4
71. The adsorption of hydrogen by platinum is known as
- a) Hydrogenation b) Dehydrogenation
c) Occlusion d) Substitution
72. From left to right in a periodic table charge to mass ratio increases therefore the hydration energy
- a) Decreases b) Increases
c) Remains constant d) None of these
73. _____ elements have been discovered so far.
- a) 100 b) 110
c) 120 d) 150
74. _____ classified the then known elements into metals, non metals and their derivatives.
- a) Dobreiner b) Al – Razi
c) Newlands d) Mendeleev
75. Dobreiner's work led to the law of triads which states that _____
- a) Atomic weight of any one element was found to be approximately the mean of the other two elements of triad.
b) Atomic weight of the middle element was found to be approximately the mean of the other two elements of a triad.
c) Atomic number of any one element was found to be approximately the mean of the other two elements of a triad.
d) Atomic number of the middle element was found to be approximately the mean of the

other two elements of a triad.

76. The law of octaves was given by _____
- a) Dobreiner b) Al – Razi
c) Newlands d) None of these
77. Law of octave states that _____
- a) The properties of every 6th element from the given one were similar to the first.
b) The properties of every 9th element from the given one were similar to the first.
c) The properties of every 8th element from the given one were similar to the first.
d) The properties of every 7th element from the given one were similar to the second.
78. Mendeleev's Periodic Table was based on _____
- a) Atomic number b) Atomic mass
c) Atomic volume d) Electronic configuration
79. Moseley's work led to the periodic law, which states that _____
- a) The number of the electrons in the 1st energy level increases as the atomic number increases.
b) The properties of the elements are a periodic function of their atomic mass.
c) The x – rays spectra of the elements are more complex than the optical spectra.
d) The properties of elements are the periodic function of their atomic number.
80. A pair of elements in the same family in the periodic table classification is _____
- a) Chlorine and carbon
b) Calcium and aluminum
c) Nitrogen and neon
d) Sodium and potassium
81. In the period, the elements are arranged in strict sequence in order of _____
- a) Increasing charges in the nucleus.
b) Increasing atomic weights.
c) Increasing number of electrons in valence

- shell.
d) Increasing valency.
82. Uranium is a member of
- a) s – block b) p – block
c) d – block d) f – block
83. How many ionization energies can carbon have?
- a) 1 b) 2
c) 4 d) 6
84. Which ion has the maximum polarization power?
- a) Li^+ b) Mg^{2+}
c) Al^{3+} d) O^{2-}
85. Which of the following halides is not oxidized by MnO_2 ?
- a) F b) Cl^-
c) Br d) I
86. The process requiring absorption of energy is
- a) $\text{F} \rightarrow \text{F}^-$ b) $\text{Cl} \rightarrow \text{Cl}^-$
c) $\text{O} \rightarrow \text{O}^{2-}$ d) $\text{H} \rightarrow \text{H}^-$
87. Most of the known elements are metals of _____ of periodic table.
- a) D – block b) P – block
c) III – group d) Zero block
88. The volume in cubic centimeters occupied by one gram atom of the element is called _____
- a) Atomic volume b) Atomic weight
c) Mass number d) None
89. The lowest ionization energies are found in the _____
- a) Inert gases b) Alkali metals
c) Transition elements d) Halogens
90. The unit of ionization energy is _____
- a) Joule b) Calorie
c) Electron volt d) None
91. The electropositive elements form _____

- a) Acidic oxides b) Basic oxides
c) Neutral oxides d) Amphoteric oxide
92. The electronegative elements form _____
- a) Acidic oxides b) Basic oxides
c) Neutral oxides d) Amphoteric oxide
93. The ionization energy of nitrogen is more than oxygen because of _____
- a) More attraction of electrons by the nucleus
b) More penetration effect
c) The extra stability of half filled p – orbital
d) The size of nitrogen atom is smaller.
94. _____ ion has the largest radius.
- a) Al^{+3} b) Cl^{-1}
c) F^{-1} d) O^{-2}
95. Ionic hydrides are usually _____
- a) Liquids at room temperature
b) Good reducing agents
c) Good electrical conductors in solid state
d) Easily reduced.
96. The hydronium ion is a/an _____
- a) Ion with formula H_2O^+
b) Ion with the formula H_3O^+
c) Free radical rather than an ion
d) Ion formed by removal of H^- from a water molecule.
97. When steam is passed over red hot coke at 1000°C , a mixture of carbon monoxide and hydrogen gas is produced. It is known as _____
- a) Heavy water b) Water gas
c) Phosgen gas d) None

CHAPTER # 2
S-Block Elements

1. The oxides of beryllium are.
(A) Acidic (B) Basic
(C) Ba^{+2} (D) Mg^{+2}
2. Which ion will have the maximum value of heat of hydration?
(A) Na^+ (B) Cs^+
(C) Ba^{+2} (D) Mg^{+2}
3. Which one of the following is not an alkali metal?
(A) Sodium sulphate (B) Potassium sulphate
(C) Zinc sulphate (D) Barium sulphate
4. The element cesium bears resemblance with.
(A) Ca (B) Cr
(C) Both of the above (D) None of the above

5. Chile saltpeter had the chemical formula
- (A) NaNO_3 (B) KNO_3
(C) $\text{Na}_2\text{B}_4\text{O}_7$ (D) $\text{Na}_2\text{CO}_3\cdot\text{H}_2\text{O}$
6. The ore $\text{CaSO}_4\cdot\frac{1}{2}\text{H}_2\text{O}$ has the general name.
- (A) Gypsum (B) Dolomite
(C) Calcite (D) Epsom salt
7. Down's cell is used to prepare.
- (A) Sodium carbonate
(B) Sodium bicarbonate
(C) Sodium metal
(D) Sodium hydroxide
8. Which element is deposited at the cathode during the electrolysis of brine in Nelson's cell?
- (A) H_2 (B) Na
(C) Cl_2 (D) O_2
9. Ionic radius of potassium is.
- (A) 60 pm (B) 133 pm
(C) 99 pm (D) 169 pm
10. Among alkaline Earth Metals, the highest heat of hydration is of.
- (A) Be (B) Sr
(C) Rb (D) Cs
11. The chemical formula of sylvite is.
- (A) $\text{Na}_2\text{CO}_3\cdot\text{H}_2\text{O}$ (B) KCl
(C) $\text{KCl}\cdot\text{MgCl}_2\cdot 6\text{H}_2\text{O}$ (D) NaCl
12. The chemical formula of Alumite (Alum stone) is.
- (A) $\text{KCl}\cdot\text{MgCl}_2\cdot 6\text{H}_2\text{O}$
(B) KCl
(C) $\text{Na}_2\text{B}_4\text{O}_7\cdot 10\text{H}_2\text{O}$
(D) $\text{K}_2\text{SO}_4\cdot\text{Al}(\text{SO}_4)_3\cdot 2\text{Al}(\text{OH})_3$
13. Among alkali metals the lowest atomic number is of.
- (A) Rb (B) K
(C) Sr (D) Li
14. Due to the high reactivity nature of the alkali metals, they are found in.
- (A) Free in nature
(B) Bounded with other elements
(C) Not free in nature
(D) All of the above

B

15. Magnesium is an essential constituent of.
- (A) Storaata (B) Plants
(C) Chlorophyll (D) None of the above
16. Which of the alkali earth metal has radioactive nature.
- (A) Be (B) Rb
(C) Both of the above (D) Na
17. Calcium Phosphate $\text{Ca}_3(\text{PO}_4)_2$ and calcium fluoride CaF_2 are essential part of living organisms.
- (A) Bones, egg shells (B) teeth
(C) Sea-shells (D) All of the above
18. Dolomite is a compound of which elements.
- (A) Be (B) Mg
(C) Ca (D) Ba
19. The melting point and boiling point of which alkaline earth metal is high.
- (A) Sr (B) Mg
(C) Be (D) Na
20. The super oxides are formed by the elements.
- (A) K, Rb, Cs (B) K, Na, Cs,
(C) K, Li, Na (D) None of the above
21. Potassium, rubidium and caesium are so highly reactive that they react with ice even at .
- (A) -100°C (B) -200°C
(C) -50°C (D) -0°C
22. Among the alkaline earth metal which has least reactivity even upto 800°C
- (A) Ba (B) Cs
(C) Li (D) Be
23. Plaster of paris is formed after heating upto 100°C
- (A) $\text{Mg}(\text{NO}_3)_2$ (B) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ (gypsum)
(C) NaNO_2 (D) LiNO_3
24. The root system of several plants have been greatly enlarged by the application of.
- A) Sulphur B) Gypsum

25. When deficiency of calcium exists various substances are accumulated in plants in _____ harmful concentration which are.

(A) Lime
(B) Aluminium
(C) Aluminium and Manganese
(D) None of the above

26. Which alkali metal behave different by from _____ others?

(A) Mg (B) Na
(C) Rb (D) Li

27. Spodumene, petalite, halite, natron, alinite are the common minerals of.

A) Alkali metals B) Alkaline earth metals
C) Both of the above D) Li

28. Sodium is prepared by the electrolysis of.

(A) Simple NaCl in Down's cell
(B) Molten NaCl in Down's cell
(C) Molten sodium hydroxide in down's cell
(D) None of the above

29. Lime is used in.

(A) Glass industry
(B) Glass and paper industries
(C) Paper industries
(D) None of the above

30. The elements which are very abundant in _____ earth crust are_____

a) Si & Al b) Ca & Mg
c) B & Al d) All

31. The oxides of Be are _____

a) Acidic b) Basic
c) Amphoteric d) None

32. Carbonates of lithium are not stable like that of sodium due to _____

a) Low electronegativity
b) Low electropositivity
c) Low charge density
d) Not know yet

33. Which one of the following is not an alkali _____ metal?

a) Francium b) Caesium
c) Rubidium d) Radium

34. Which of the following sulphates is not soluble in water?
- a) Sodium sulphate b) Potassium sulphate
c) Zinc sulphate d) Barium sulphate
35. The ore $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ has the general name_____
- a) Gypsum b) Dolomite
c) Sodium metal d) Sodium hydroxide
36. Crystals of $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ when exposed to air, _____
- a) Lose water and remain solid
b) Gain water and remain solid
c) Gain water and become liquid
d) Remains unchanged.
37. The deliquescence is a process in which a solid_____
- a) Absorbs moisture and remains solid
b) Absorbs moisture and turns to liquid form
c) Loses water of crystallization
d) Increases the number of water of crystallization
38. In diaphragm cell, level of brine in anode compartment is kept slightly higher which prevents_____
- a) Hydroxide ions to reach anode
b) Chlorine gas to mix
c) Anode to decay
d) All
39. Alkali metals form bonds
- a) Ionic b) Covalent
c) Metallic d) Co-ordinate covalent
40. The alkali metals, which have radioactive isotopes
- a) Li b) Na
c) K d) K and Rb
41. Halite is the mineral of
- a) Sodium b) Potassium
c) Lithium d) Cesium
42. $\text{Na}_2\text{SO}_3 \cdot 10\text{H}_2\text{O}$ is the mineral of sodium and is called
- a) Spodumene b) Halite
c) Natron d) Sylvite

43. Which one of the following is dolomite?
a) MgCO_3 b) $\text{MgCO}_3 \cdot \text{CaCO}_3$
c) CaCO_3 d) BaSO_4
44. The high electrical conductivity of alkali metals is due to the
a) Free motion of valence electrons
b) High I.P
c) Lesser atomic radii
d) None of these
45. Sodium imparts color to Bunsen flame
a) Green b) Violet
c) Blue d) Yellow
46. All alkaline earth metals are white except
a) Mg b) Ca
c) Be d) Sr
47. Metals, which are higher than water, are
a) Alkaline earth metals
b) Coinage metals
c) Alkali metals
d) All of these
48. Except lithium, the hydroxides of all alkali metals are
a) Strongly acidic b) Strongly basic
c) Weakly basic d) All of these
49. The carbonates and phosphates of which elements are insoluble in water
a) Na and K b) Na and Be
c) Li and Mg d) All of these
50. All alkaline earth metals react with water at room temperature to release hydrogen and give basic solutions except
a) Be and Ca b) Be and Mg
c) Ca and Mg d) Mg and Sr
51. Lithium only forms normal oxides when burnt on air but when sodium burnt in air it forms
a) Normal oxides b) Sub oxides
c) Peroxides d) Super oxides
52. The super oxides of alkali metals are generally represented by
a) M_2O b) M_2O_2
c) MO_2 d) M_2O_3

53. The nitrates of which group decompose on heating with the formation of nitrites and evolution of oxygen
- a) IA b) II A
c) III A d) IV A
54. A small amount of calcium chloride or mixture of KCl and KF is added to NaCl in Down's cell
- a) To make it good conductor
b) To decrease the m.p of NaCl
c) To increase the ionization of NaCl
d) To decrease the ionization of NaCl
55. Liquid sodium in the Down's cell is collected at a temperature of
- a) 700°C b) 600°C
c) 500°C d) 400°C
56. The product, which is obtained at cathode in the Down's cell is
- a) Liquid Sodium b) Dry chlorine
c) Water d) Hydrogen
57. Which is manufactured by the electrolysis of fused sodium chloride?
- a) NaOH b) NaHCO₃
c) Na d) Na₂CO₃
58. Which of the following does not conduct electricity?
- a) Boron b) Gallium
c) Indium d) Thallium
59. Which alkali metal is rare and found in a small amount in all – igneous rocks?
- a) Li b) Na
c) K d) Fr
60. The ingredient of baking powder is
- a) NaHCO₃ b) NaOH
c) Na₂CO₃ d) NaCl
61. The formula of plaster of Paris is
- a) CaSO₄ b) CaSO₄.H₂O
c) CaSO₄.2H₂O d) 2CaSO₄.H₂O
62. Which of the following is fluorspar?
- a) CaO b) CaCO₃
c) CaF₂ d) NaOH
63. Potassium is kept in

- a) Water b) Alcohol
c) Ammonia d) Kerosene oil
64. Which one has high m.p?
- a) NaCl b) NaBr
c) NaI d) NaF
65. Which one of the following is most basic?
- a) Al_2O_3 b) SiO_2
c) P_2O_5 d) MgO
66. Gypsum is
- a) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ b) $\text{CaSO}_4 \cdot \text{H}_2\text{O}$
c) CaSO_4 d) MgSO_4
67. Which one is commonly used as a laboratory desiccator?
- a) Na_2CO_3 b) NaCl
c) CaCl_2 d) NaOH
68. The radioactive alkaline earth metal is
- a) Be b) Mg
c) Ra d) Ba
69. Which one of the following elements has its compounds which are diamagnetic and colourless?
- a) Be b) Sr
c) Na d) All of these
70. Which metal is an important component of transistors?
- a) Ag b) Au
c) Ra d) Os
71. Which impurities are present in common salt?
- a) Na_2SO_4 b) CaSO_4
c) CaCl_2 d) All of these
72. K can displace Na from NaCl due to
- a) Greater I.P of K
b) Greater I.P of Na
c) More electropositivity of K
d) More electropositivity of Na

73. The alkali metal, which is artificially prepared
- a) Na b) Rb
c) Fr d) Cs
74. The chemical use for the production of CO_2 in the fire extinguishers is
- a) NaOH
b) NaCl
c) NaHCO_3 and dilute acid
d) NaHCO_3 and NaOH
75. LiCl is more soluble in organic solvents than NaCl because
- a) Li^{+1} has higher heat of hydration than Na^{+}
b) Li^{+1} has lower heat of hydration than Na^{+}
c) LiCl is more covalent than NaCl
d) Lattice energy of NaCl is less than that of LiCl
76. Which compound is used for uric acid treatment in human beings?
- a) Na_2CO_3 b) NaHCO_3
c) Li_2CO_3 d) NaNO_3
77. Which element is used in T.V picture tube?
- a) Na b) K
c) Ca d) Cs
78. Which one is used in the manufacture of chalk pencils?
- a) Marble b) Gypsum
c) Epsom salt d) Baking soda
79. Plaster of Paris has a structure
- a) Cubic b) Monoclinic
c) Hexagonal d) Orthorhombic
80. Potassium super oxide (KO_2) is used in breathing equipments for mountaineers and space craft because it absorb
- a) Oxygen and giving out CO_2 at the same time
b) N_2 and giving out CO_2 at the same time
c) CO_2 and giving out O_2 at the same time
d) Pollutants and giving out O_2 at the same time
81. The hydroxide, which is called milk of magnesium and is used for treatment of acidity in stomach, is
- a) $\text{Ca}(\text{OH})_2$ b) $\text{Mg}(\text{OH})_2$
c) $\text{Sr}(\text{OH})_2$ d) $\text{Ba}(\text{OH})_2$
82. Mg^{+2} is smaller the Na^{+1} because

- a) Mg^{+2} has fewer electron than Na^{+1}
 b) Mg^{+2} has greater electron than Na^{+1}
 c) Mg^{+2} has greater atomic number than Na^{+1}
 d) Mg^{+2} has low I.P than Na^{+1}
83. Which of them has almost same electronegativity?
 a) Be, B b) B, Al
 c) Be, Al d) K, Na
84. A mixture formed by mixing one volume of slaked lime Ca(OH)_2 with three or four volume of sand and water to form a thick paste is called
 a) Lime water b) Dead water
 c) Quick lime d) Milk of lime
85. If the compound has the same crystal structure and analogous formulae, they are called
 a) Isotopes b) Allotropes
 c) Isomers d) Isobars
86. Out of all elements of group IA, the highest heat of hydration is for _____
 a) K b) Rb
 c) Cs d) Li
87. The nitride ion in lithium nitride is composed of
 a) 7 protons and 7 electrons
 b) 10 protons and 7 electrons
 c) 10 protons and 10 electrons
 d) 10 protons and 5 electrons
88. When NH_3 is passed over heated sodium at 300°C , the product formed is
 a) NaNH_2 b) NaNO_2
 c) $\text{Na(NH}_3)_2$ d) Na_3N
89. Sodium metal can be stored under
 a) Benzene b) Kerosene
 c) Alcohol d) Water
90. Chile sulphur is
 a) NaNO_2 b) KNO_2
 c) NaNO_3 d) KNO_3
91. Alkali metals do not exist in
 a) Monoatomic b) Diatomic
 c) Triatomic d) None of these
92. In general alkali metals act as _____

- a) Reducing agents
b) Oxidizing agents
c) Both reducing and oxidizing agents
d) None of these
93. Sodium is not observed in + 2 oxidation state because of its _____
a) High first ionization potential
b) High second oxidation potential
c) High ionic radius
d) High electronegativity
94. The metallic luster of sodium is explained by the presence of _____
a) Na^+ ions
b) Conduction electrons
c) Free protons
d) A body centered cubic lattice
95. In the alkali metal series, Cesium is the most reactive metal because _____
a) Its incomplete shell is nearest to nucleus
b) The valence electron has a larger orbit than the orbit of the valence electron of any of the other.
c) It exerts considerable beautiful force on the valence electrons
d) It is a heavier metal.
96. A graphite anode is used in Down's cell for the production of sodium because _____
a) It does not react with sodium
b) It does not react with chlorine
c) It is easy to fashion in circular form
d) It floats on the fused sodium chloride
97. Alkaline earth metals form _____ carbides on heating with carbon.
a) Stable
b) Unstable
c) Soluble
d) None of these
98. When burnt in air, Lithium forms _____
a) Normal oxide
b) Peroxide
c) Super oxide
d) None of these
99. Sodium bicarbonate is commonly called
a) Soda ash
b) Baking soda
c) Caustic soda
d) None of these
100. _____ is a stronger base.

- a) NaOH b) KOH
c) LiOH d) HCl
101. Excess of NaOH reacts with zinc to form
- a) Zn(OH)_2 b) ZnH_2ZA
c) Na_2ZnO_2 d) ZnO
102. Which of the following represents calcium chlorite?
- a) CaClO_2 b) $\text{Ca(ClO}_4)_2$
c) $\text{Ca(ClO}_3)_2$ d) $\text{Ca(ClO}_2)_2$
103. Sodium hydroxide solution reacts with phosphorus to give phosphine, To bring about we need this reaction
- a) White phosphorus and dilute NaOH
b) White phosphorus and concentrated NaOH
c) Red phosphorus and dilute NaOH
d) Red phosphorus and concentrated NaOH
104. Sodium reacts with water more vigorously than lithium because it
- a) Has higher atomic weight
b) Is more electronegative
c) Is more electropositive
d) Is a metal
105. Plaster of Paris hardens by
- a) Giving off CO_2
b) Changing into CaCO_3
c) Uniting with water
d) Giving out water

CHAPTER # 3
Group III and IV Elements

1. Which metal is used in the thermal process because of its activity.
(A) Iron (B) Copper
(C) Aluminum (D) Zinc
2. Aluminum oxides is
(A) Acidic oxide (B) Basic oxide
(C) Amphoteric oxide (D) None of these
3. Chemical composition of colemanite is.
(A) $\text{Ca}_2\text{B}_6\text{O}_{11} \cdot 5\text{H}_2\text{O}$ (B) $\text{CaB}_4\text{O}_7 \cdot 4\text{H}_2\text{O}$
(C) $\text{Na}_2\text{B}_4\text{O}_7 \cdot 4\text{H}_2\text{O}$ (D) $\text{CaNaB}_5\text{O}_9 \cdot 8\text{H}_2\text{O}$
4. Which element forms an ion with charge 3+.
(A) Beryllium (B) Aluminum
(C) Carbon (D) Silicon
5. Which element among the following belongs to Group IVA of the periodic Table.
(A) Barium (B) Iodine
(C) Lead (D) Oxygen
6. Boric acid cannot be used.
(A) As antiseptic in medicine
(B) For washing eyes
(C) In soda bottles
(D) For enamels and glazes
7. Which of the following elements is not present abundantly in earth's crust.
(A) Silicon (B) Aluminum
(C) Sodium (D) C
8. The chief Ore of aluminum is.
(A) Na_3AlF_6 (B) $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$
(C) Al_2O_3 (D) $\text{Al}_2\text{O}_3 \cdot \text{H}_2\text{O}$
9. The Group IIA of the periodic table comprises the elements.
(A) Boron, aluminum, gallium, indium and thallium.
(B) Boron gallium, thallium.
(C) Aluminum, calcium, strontium.
(D) All of the above
10. Boron is non-metallic because of
(A) Large size and higher nuclear charge

- (B) Small size and higher nuclear charge
(C) Small size and smaller nuclear charge
(D) None of the above
11. The increase in the atomic size in group is
(A) Regular (B) Irregular
(C) Both (D) None of the above
12. Orthoboric Acid is a mineral of.
(A) Aluminum (B) Silicon
(C) Calcium (D) Boron
13. Aluminum is the third most abundant elements in earth crust after.
(A) Oxygen (B) Silicon
(C) None of the above (D) Both of the Both
14. Bauxite is an ore of.
(A) Aluminum (B) Boron
(C) Carbono (D) Gallium
15. Which of the elements of Group IIA are rare and only obtained as by-products.
(A) Gallium thallium
(B) Thallium indium
(C) Gallium indium
(D) Gallium thallium indium
16. Borax is the sodium salt of tetraboric acid. It is most important of all among.
(A) Borates (B) Carbonates
(C) Bicarbonates (D) None of the above
17. Borax occurs as natural deposit called tincal in the dried up lakes of.
(A) Tibet (B) California
(C) Tibet & California (D) Virginia
18. Group IV A of the periodic table comprises elements.
(A) Carbon silicon
(B) Tin, carbon , silicon
(C) Carbon, silicon, tin and lead
(D) None of the above
19. The non-metals in Group IV A are.
(A) Carbon, silicon (B) Tin and Lead
(C) All of the above (D) None of the above
20. The elements of Group IV A are character sized by a set of .
(A) Three valence shell electrons

- (B) Four valence shell electrons
- (C) Five valence shell electrons
- (D) Two valence shell electrons

21. Group IV A elements form.

- (A) Super oxide (B) Oxides
- (C) Dioxide (D) All of the above

22. The property of catenation among the carbon and silicon .

- (A) Increase on moving down the group from carbon to lead
- (B) Decrease on moving down the group from lead to carbon.
- (C) Decreases on moving down the group from carbon to lead
- (D) Stable on moving down the group from carbon to lead.

23. The oxides of carbon are

- (A) CO and CO₂
- (B) CO, CO₂ and C₃O₂ carbon sub oxide
- (C) CO, CO₂, C₂C₃
- (D) None of the above

24. China wares are made from a mixture of

- (A) Kaolin and bone ash
- (B) Kaolin and feldspar
- (C) Kaolin feldspar and bone ash
- (D) None of the above

25. Various oxides are used as pigments in the pigments of which element.

- (A) Oxides of lead, basic lead carbonate etc.
- (B) Various oxides of lead
- (C) Various oxides of lead, basic lead carbonate, lead chromate
- (D) Oxides of aluminum

26. Boron occurs in traces and has been found to be important for the growth of.

- (A) Plants of many kinds
- (B) Plants and animals
- (C) Animals
- (D) None of the above

27. Semiconductors conduct electricity better than.

- (A) Conductors (B) Insulators
- (C) Both of the above (D) None of the above

28. Oxygen is the abundant element in earth crust?
(A) Most of all
(B) 2nd in number
(C) Third most abundant
(D) 4th most abundant
29. Substance which is found in dried up lakes of Tibet and California is _____
a) Tincal b) Boric Acid
c) Calcium carbonate d) All
30. Boron is a white crystalline solid and it is _____
a) More soluble in cold water
b) More soluble in hot water
c) More soluble in water
d) Soluble only in organic solvents
31. One of the outstanding features of boron is ability to form _____
a) Molecular addition compounds
b) Molecular crystals
c) Semiconductors
d) All
32. Which of the following does not give Borax bead test?
a) Cu b) Cr
c) Ni d) Al
33. The metal which is used in thermite process because of its activity is _____
a) Iron b) Copper
c) Aluminium d) Zinc
34. Which of the following shows inert pair effect?
a) Boron b) Carbon
c) Silicon d) Tin
35. Tincal is a mineral of _____
a) Al b) Si
c) B d) C
36. Because of its ability to combine with both oxygen and nitrogen, aluminium metal is used _____
a) As nitrometer
b) To remove air bubbles from molten metal
c) To produce alloy
d) All

37. Silicon differ from silica by a group of _____
- a) CH_3 b) $-\text{OH}$
c) OCH_3 d) O_2
38. Boron in soil has been considered essential specially for _____
- a) Soil porosity
b) Proper growth of plants
c) Alkalinity of soil
d) All
39. Special feature of borate glass is that it is _____
- a) Heat resistant
b) Low melting
c) Used to prepare chemical garden
d) All
40. In p – block elements, the S – electrons of outer shell of the heavier members are failed to participate in bonding, because they
- a) Remain paired b) Remain unpaired
c) Are free d) None of these
41. The tendency of the pair of S – electron to remain inert increase with the increase in
- a) Atomic number b) Atomic weight
c) E.N d) I.P
42. Boron does not easily form cations, because it has the tendency to form bond like non-metal
- a) Ionic bond b) Metallic bond
c) Hydrogen bond d) Covalent bond
43. Boron is metalloid and semiconductor like
- a) Be b) K
c) Si d) Al
44. Which element is unstable in air and is oxidized superficially in air
- a) Aluminum b) Thallium
c) Gallium d) Indium
45. Crystalline boron has structure
- a) Cubic b) Monoclinic
c) Hexagonal d) Trigonal
46. The hydrides B_2H_6 and Si_2H_6 are said to

- a) Ionic hydrides b) Complex hydrides
c) Interstitial hydrides d) Covalent hydrides
47. The compound, which is used in borax bead test for cations analysis, is
- a) NaOH b) H_3BO_3
c) $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$ d) $\text{H}_2\text{B}_4\text{O}_7$
48. Orthoboric acid is weak acid because it
- a) Accepts OH^{-1} ion b) Donate OH^{-1} ion
c) Accept H^{+1} d) Donate H^{+1}
49. The aqueous solution of which acid is used for washing eyes?
- a) $\text{H}_2\text{B}_4\text{O}_7$ b) HCl
c) H_3BO_3 d) HBO_2
50. The process in which Bauxite is purified by dissolving it in 45% aqueous NaOH at 150°C to separate insoluble iron oxide as red mud is called
- a) Hall's process b) Baeyer's process
c) Arrhenius process d) Grignard process
51. Bauxite is an oxide mineral of
- a) Cu b) Ag
c) Al d) Zn
52. AlCl_3 and GaCl_3 are covalent when anhydrous because
- a) They belong to group III A
b) Their ions have small size and high charge
c) They have high I.P
d) None of these
53. In the electrolysis of alumina is mixed with Cryolite (Na_3AlF_6) and fluorspar (CaF_2) in the ratio of 20 : 60 : 20. the function of the Cryolite and fluorspar is
- a) To decrease the fusion temperature of alumina and to make good conductor of electricity
b) To dissolve alumina
c) To dissolve sodium
d) To increase the ionization of alumina
54. Termite is a mixture of
- a) Iron oxide and aluminum
b) Iron oxide and copper
c) Copper oxide and aluminum
d) None of these
55. In aluminum termite process, aluminum acts as a
- a) Reducing agent b) Oxidizing agent

- c) A flux d) None of these
56. Which aluminium alloy is extremely light?
- a) Duralumin b) Alnico
c) Magnalium d) Aluminium bronze
57. Cupric oxide on heating with B_2O_3 yields blue colored beads in the oxidizing flame because
- a) Cupric borates are white in color
b) Cupric borates are black in color
c) Cupric borates are green in color
d) Cupric borates are blue in color
58. In mordenting aluminium ions (Al^{+3}) are precipitated on the cloth as
- a) Al_2O_3 b) AlN
c) $Al(OH)_3$ d) $AlCl_3$
59. Platinum metal can be dissolved in
- a) Hot con HCl
b) Hot con H_2SO_4
c) Hot con HNO_3
d) A mixture of Con. HCl and con HNO_3
60. Which of the following can form nitride, which react with water to give ammonia?
- a) Boron b) Gallium
c) Indium d) Thallium
61. The weak acid, which cannot be titrated with standard alkies, is
- a) HCl b) H_2SO_4
c) H_3BO_3 d) All of these
62. Carbon differs from other members of its group due to smaller atomic size, higher electronegativity and the absence of
- a) s – electrons b) p – electrons
c) d – electrons d) All of these
63. Aqua regia is a mixture of concentrated HNO_3 and concentrated HCl in the ratio of
- a) 3 : 1 b) 1 : 3
c) 2 : 3 d) 3 : 2
64. In land storage batteries, the acid used is
- a) Con HCl b) Dil HCl
c) Con H_2SO_4 d) Dil H_2SO_4
65. The dry ice is a compound of
- a) Solid ice with any water
b) Solid SO_2

- c) Solid CO_2
d) Solid C_6H_6
66. In the contact process for the manufacturing of H_2SO_4 , the catalyst used is
a) Cu b) Ni
c) Pt d) N_2O_5
67. The depositing layer in tin plating is
a) Cu b) Sn
c) Al d) Ni
68. Ortho boric acid on heating at 100°C yields
a) Meta boric acid
b) Pyroboric acid
c) Tetra boric acid
d) Boric anhydride acid (B_2O_3)
69. Which of the following is used in photographic film?
a) MgBr_2 b) NaCl
c) AgBr d) $\text{Na}_2\text{S}_2\text{O}_3$
70. Aluminum does not react with HNO_3 at any concentration and therefore HNO_3 is transported in aluminum containers, this is due to formation of protective layer of
a) Cupric oxide b) Ferric oxide
c) Aluminum oxide d) Aluminum nitride
71. Action of aqua regia on noble metals is due to
a) HNO_3 b) HCl
c) H_2SO_4 d) Chlorine
72. Phosgene is a poisonous gas, its chemical name is
a) Carbon dioxide b) Phosphonyl chloride
c) Carbon monoxide d) Carbonyl chloride
73. The maximum inert pair effect is shown by
a) B b) Al
c) Ga d) Tl
74. Quartz is the polymeric form of
a) $(\text{SiO}_2)_n$ b) $(\text{CO}_2)_n$
c) $(\text{CH}_2 - \text{CH}_2)_n$ d) None of these
75. If a metal is protected by an oxide layer from further attack, the metal is said to be
a) Reactive b) Active
c) Passive d) Attractive
76. Carbon reacts with metals to form

- a) Hydrides b) Oxides
c) Hydroxides d) Carbide
77. The control addition of III A and IV A members in Silicon and Germanium is known as
- a) Inert pair effect b) Doping
c) Litharge d) Red lead
78. P – type of semi conductor are formed by mixing Silicon or Germanium with members of
- a) III A b) IV A
c) V A d) VI A
79. Litharge is chemically
- a) PbO b) PbO₂
c) Pb₃O₄ d) Pb(CH₃COO)
80. The Octet rule is not followed by
- a) Boron on BCl₃ b) Oxygen in H₂O
c) Nitrogen in NH₃ d) Phosphorus in PH₃
81. Which of the following elements show oxidation state of + 3 only?
- a) B b) Ga
c) In d) Ti
82. _____ of the following is not metallic in nature.
- a) Boron b) Aluminum
c) Indium d) Thallium
83. The oxides of Boron are _____ in nature.
- a) Acidic b) Basic
c) Neutral d) None of these
84. Orthoboric acid on heating to about 100°C loses a water molecule to form _____
- a) Metaboric acid
b) Pyroboric acid
c) Metaboric and pyroboric acid
d) None of these
85. The function of Fluorspar in the electrolytic reduction of alumina dissolved in fused cryolite (Na₃AlF₆) is
- a) As a catalyst
b) To lower the temperature of the melt and to make the fused mixture conducting.
c) To decrease the rate of oxidation of carbon at the anode.

- d) None of the above
86. Which of the following statements is correct?
- a) H_3PO_3 is dibasic and reducing
 - b) H_3PO_3 is tribasic and reducing
 - c) H_3PO_3 is tribasic and non – reducing
 - d) H_3PO_3 is dibasic and non – reducing
87. Boric acid is
- a) Weak monobasic Lewis acid
 - b) Only weak monobasic Arrhenius acid
 - c) Only weak monobasic Bronsted acid
 - d) Only weak tribasic Arrhenius acid
88. The reduction of metal oxides is sometimes accomplished by using aluminum in the _____
- a) Goldschmidt's reaction
 - b) Silberchemdit's reaction
 - c) Baeyer's reaction
 - d) Zilch's reaction
89. Hall's process is based on electrolysis of _____
- a) Alumina
 - b) Gypsum
 - c) Borax
 - d) None of these
90. _____ is a better conductor of heat.
- a) Fe
 - b) Sn
 - c) Al
 - d) None of these
91. Al_2O_3 formation involves evolution of a larger quantity of heat which makes its uses in _____
- a) Deoxidizer
 - b) Confectionary
 - c) Indoor photography
 - d) Thermite welding
92. In the commercial electrochemical process for aluminum extraction, the electrolyte used is
- a) $\text{Al}(\text{OH})_3$ in NaOH solution
 - b) An aqueous solution of $\text{Al}_2(\text{SO}_4)_3$
 - c) A molten mixture of Al_2O_3 and Na_3AlF_6
 - d) A molten mixture of $\text{AlO}(\text{OH})$ and $\text{Al}(\text{OH})_3$
93. Borax is prepared by treating colemanite with

- a) NaNO_3 b) NaCl
c) NaHCO_3 d) Na_2CO_3
94. Elements, which exist in two or more physical or molecular forms, are called _____
- a) Isotopes b) Allotropes
c) Isobars d) None of these
95. PbO behaves as a/an _____
- a) Amphoteric oxide b) Basic oxide
c) Super oxide d) Sub oxide
96. The number and type of bonds between two carbon atoms in CaC_2 are
- a) One sigma and one pi bond
b) One sigma and two pi bonds
c) One sigma and one and a half pi bond
d) One sigma bond
97. Aluminum is diagonally related to
- a) Li b) Si
c) Be d) B
98. Which of the following halides is least stable and has doubtful existence?
- a) Cl_4 b) SnI_4
c) GeI_4 d) PbI_4
99. In which of the following phosphorus has an oxidation state of + 4?
- a) P_4O_6 b) P_4O_8
c) P_4O_9 d) None of these

CHAPTER # 4
Group V and VI Elements

1. Out of all the elements of group VA the highest ionization energy is possessed.

(A) N	(B) P
(C) Sb	(D) Bi
2. In group VA elements the most electronegative elements is.

(A) Sb	(B) N
(C) P	(D) As
3. Oxidation of NO in air produced.

(A) NO ₂	(B) N ₂ O ₃
(C) N ₂ O ₄	(D) N ₂ O ₅
4. The brown gas is formed when metal reduces HNO₃

(A) N ₂ O ₅	(B) N ₂ O
(C) NO ₂	(D) NO
5. Laughing gas is chemically

(A) NO	(B) N ₂ O
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- (C) NO_2 (D) N_2O_4
6. Out of all the elements of group IVA the highest melting and boiling point is shown by the elements;
- (A) Te (B) Se
(C) S (D) Pb
7. SO_3 is not absorbed in water directly to form H_2SO_4 because.
- (A) The reaction does not go to completion
(B) The reaction is quite slow
(C) The reaction is exothermic
(D) SO_3 is insoluble in water
8. Which catalyst is used in contact process?
- (A) Fe_2O_3 (B) V_2O_5
(C) SO_3 (D) Ag_2O
9. Which of the following specie has the maximum number of unpaired electrons.
- (A) O_2 (B) O_2^+
(C) O_2^- (D) O_2^{2-}
10. Nitrogen and phosphorus of group VA show the typical properties of
- (A) Metals (B) Non-Metals
(C) Both of the above (D) None of the above
11. Arsenic and antimony are
- (A) Metals (B) Non-Metal
(C) Metalloids (D) None of the above
12. The common valencies of the group VA elements are
- (A) Two to three (B) Three and five
(C) One and five (D) Two and four
13. Nitrogen is present in free state in air as a major constituent about.
- (A) 58% (B) 38%
(C) 70% (D) 78%
14. Common oxides of nitrogen are
- (A) N_2O , NO and NO_2
(B) NO, NO_2
(C) N_2O , NO_2
(D) N_2O , NO, NO_2 , N_2O_3 & N_2O_5
15. Di-Nitrogen oxide is a colourless gas.
- (A) With a faint pleasant smell and a sweetish

- taste.
- (B) With unpleasant smell and bitter taste.
 - (C) With pleasant smell and bitter taste.
 - (D) With unpleasant smell and sweetish
16. Nitric acid is used for.
- (A) Making varnishes and Organic dyes
 - (B) For making organic dyes
 - (C) Making varnishes
 - (D) For making varnishes, organic dyes, explosives nitrogen fertilizers etc.
17. Allotropes of phosphorus are of
- (A) Three types
 - (B) Four types
 - (C) Two types
 - (D) Six different types
18. In combined state nitrogen is found in all living matter including.
- (A) Animals and plants as proteins urea and amino acids.
 - (B) In plants only
 - (C) In animals only
 - (D) None of the above
19. All the elements of group VIA are non-metals except.
- (A) S (sulphur)
 - (B) O (oxygen)
 - (C) Po (polonium)
 - (D) Te (tellurium)
20. In group VIA the radioactive metal is
- (A) Te (tellurium)
 - (B) O (oxygen)
 - (C) N (nitrogen)
 - (D) None of the above
21. Oxygen has allotropic forms such as.
- (A) Three
 - (B) Four
 - (C) Two
 - (D) Five
22. Oxygen is comprising about .
- (A) 30% of earth's crust
 - (B) 20% of earth's crust
 - (C) 10% of earth's crust
 - (D) 50% of earth's crust
23. In the atmosphere the free oxygen occurs about
- (A) 1/3 of the atmospheric air

- (B) 1/2 of the atmospheric air
(C) 1/4 of the atmospheric air
(D) 2/3 of the atmospheric air
24. Water contains nearly combined form of oxygen
(A) 50% (B) 70%
(C) 30% (D) 89%
25. Sulphur exist as
(A) Free and combined state
(B) Only in free state
(C) Combined state
(D) None of the above
26. Which of the following possesses melting point below 0°C ?
a) Nitrogen b) Phosphorus
c) Carbon d) Bismuth
27. Formation of H_2SO_4 by Contact process is an example of _____
a) Homogenous equilibrium
b) Heterogenous equilibrium
c) Sulphonation
d) Dilution
28. Which of the following does not contain phosphorus?
a) Yolk of egg b) Bone
c) Nerves d) Steel
29. Which of the following elements can follow extended octet rule?
a) P b) C
c) B d) N
30. The composition of brown ring in nitrate test is _____
a) $\text{FeSO}_4 \cdot \text{NO}$ b) $\text{FeSO}_4 \cdot \text{NO}_2$
c) $\text{FeSO}_4 \cdot \text{NO}_3$ d) None of above
31. Which one of the following compounds smells like garlic?
a) P_2O_3 b) P_2O_5
c) H_3PO_3 d) All have same smell
32. All the elements in group VIA are _____
a) Hygroscopic b) Metals
c) Polymeric d) All of above

33. Phosphoric acid is a weak acid and its basicity is _____
- a) 1 b) 3
c) Zero d) 1 & 3
34. The nitrogen gas present in air is
- a) More b) Less reactive
b) Non reactive d) Moderately reactive
35. The properties of Nitrogen is different from other members of its group to
- a) Small atomic size and high E.N
b) Single screening shell
c) Absence of d – orbital in the valence shell
d) All of these
36. Nitrogen can not act as a central metal atom in a complex because it can not
- a) Devote electrons b) Accepts electrons
c) Form an ion d) All of these
37. Which oxides of nitrogen exist in solid state?
- a) N_2O b) NO
c) NO_2 d) N_2O_5
38. The test which is used to confirm the presence of nitrate is
- a) Silver mirror test b) Ring test
c) Tollen's test d) Baeyer's test
39. Nitric oxide has
- a) Unpaired electrons
b) Odd number of electrons
c) Paramagnetic
d) All of these
40. Mixture of HNO_3 and NO_2 is called
- a) conc HNO_3 b) dil HNO_3
c) fuming HNO_3 d) HNO_3
41. Which one PX_5 is unknown?
- a) PCl_5 b) PBr_5
c) PF_5 d) PI_5
42. Orthophosphorous acid is a
- a) Monobasic acid b) Dibasic acid

- c) Tribasic acid d) Base
43. Galena is an ore of
- a) S b) Te
c) Po d) Mg
44. White phosphorous occurs in the form of
- a) Monoatomic molecule
b) Diatomic molecules
c) Triatomic molecules
d) Tetra atomic molecules
45. The acid which has garlic like smell and is crystalline deliquescent is
- a) H_2SO_4 b) HCl
b) H_3BO_3 d) HNO_3
46. The acid which forms three series of salt is
- a) H_2SO_4 b) H_3BO_3
c) H_3PO_4 d) HNO_3
47. Removal of arsenic oxide is very essential because it acts as a
- a) Catalyst b) Activator
c) Catalytic poison d) Co-enzyme
48. The structure of H_2SO_4 is
- a) Trigonal b) Octahedral
c) Tetrahedral d) Hexagonal
49. Which pair does not produce H_2 gas?
- a) Cu and Con HNO_3
b) $\text{C}_2\text{H}_5\text{OH}$ and Na metal
c) Mg and steam
d) Phenol and sodium metal
50. Why it is difficult to form nitrogen compounds from gaseous nitrogen
- a) All its reactions are endothermic
b) The bond dissociation
c) It contain triple bond
d) Its first ionization energy is very high
51. The elements which is essential in nitrogen fixation is
- a) Zn b) Mo
c) Fe d) S
52. Which one act as a free radical?
- a) CO_2 b) CH_4
c) NO d) BF_3

53. The starting material in Birkland and Eyde process for manufacturing of HNO_3 is
- a) NH_3 b) NO_2
c) Air d) NaNO_3
54. In making safety matches we use
- a) White phosphorus
b) Gray phosphorus
c) Violet phosphorus
d) Red phosphorus
55. Which is most stable isotope of sulphur?
- a) Plastic sulphur b) Monoclinic sulphur
c) Rhombic sulphur d) Colloidal sulphur
56. Consider
 $\text{NH}_4\text{NO}_3 \xrightarrow{\text{gentle heating}} \text{Product}$
 The product formed is
- a) N_2O b) N_2
c) NO d) N_2O_3
57. The product formed by heating mixture of NO and NO_2 are
- a) N_2O_5 b) N_2O_4
c) N_2O d) N_2O_3
58. Nitric oxide is prepared by the action of HNO_3 on
- a) Fe b) Cu
c) Zn d) Sn
59. On industrial scale Nitric acid is prepared by _____
- a) Dutch Process
b) Birkland-Eyde's Process
c) Solvay's Process
d) Down's Process
60. In Ostwald's Process the substance used to oxidise ammonia is _____
- a) Zn b) Pt
c) CO d) None of these
61. Copper reacts with dilute nitric acid to form
- a) Nitric oxide b) Nitrogen peroxide
c) Nitrous Oxide d) None of these
62. By _____ process the H_2SO_4 produced is

pure and can be produced of any desired strength.

- a) Lead Chamber Process
- b) Contact Process
- c) Down's Cell
- d) None of these

63. Concentrated sulphuric acid acts as a _____

- a) Reducing agent b) Oxidizing agent
- c) Dehydrating agent d) None of these

64. In group VI A highest electronegativity is for

- a) S b) O
- c) Pb d) Se

65. Rhombic sulphur consists of _____

- a) S₈ chain b) S₂ chains
- c) S₄ rings d) S₈ rings

66. The number of hydroxyl group in phosphoric acid is

- a) 3 b) 4
- c) 5 d) 7

67. When liquid sulphur at one atmospheric pressure is very slowly cooled, unless super cooling occurs, the first solid to appear is _____

- a) Monoclinic sulphur b) Rhombic sulphur
- c) Hexagonal sulphur d) Metallic sulphur

68. _____ is obtained when ammonium dichromate is refrigerant?

- a) Nitrogen b) Oxygen
- c) Ammonia d) None

69. Which compound acts as an oxidizing as well as a reducing agent?

- a) SO₂ b) MnO₂
- c) Al₂O₃ d) CrO₃

70. Which of the following acids does not involve S – S bond?

- a) Pyrosulphurous acid
- b) Dichotomous acid
- c) Dichotic acid
- d) Pyrosulphuric acid

71. Oleum is formed by combining H_2SO_4 with
- a) SO_2
 - b) SO_3
 - c) S
 - d) H_2S
72. When SO_2 is passed through an acidified KMnO_4 solution
- a) KMnO_4 is oxidized
 - b) KMnO_4 is reduced
 - c) SO_2 is reduced
 - d) KMnO_4 solution turns green

CHAPTER # 5

Halogens and Noble Gases

- Which is the most volatile compound?
(A) HI (B) HCl
(C) HBr (D) HF
- Which one is the anhydride of HClO_4 ?
(A) Cl_2O (B) ClO_2
(C) Cl_2O_6 (D) Cl_2O_7
- Which of the following halogens does not form its oxyacids ?
(A) Fluorine (B) Chlorine
(C) Bromine (D) Iodine
- Bromine is obtained on a commercial scale from
(A) Caliche (B) Carnallite
(C) Common salt (D) Cryolite.
- Iodine deficiency in diet is known to cause
(A) Beriberi (B) Goitre
(C) Rickets (D) Night blindness
- Which one of the halogen acid is a liquid ?
(A) HF (B) HCl
(B) HBr (D) HI.
- Which of the following acid is weakest
(A) HClO (B) HBr
(C) HClO_3 (D) HCl .
- In which of the following, oxygen has +2 oxidation number ?
(A) F_2O (B) Cl_2O
(C) Na_2O_2 (D) Na_2O .
- Fluorine does not show positive oxidation states due to the absence of
(A) d-orbitals (B) s-orbitals
(C) p-orbitals (D) None
- Which of the following has greatest reducing power?

- (A) HI (B) HBr
(C) HCl (D) HI.
11. Bad conductor of electricity is
- (A) H_2F_2 (B) HCl
(C) HBr (D) HI
12. Bleaching power is obtained by the action chlorine gas and
- (A) Dilute solution of $\text{Ca}(\text{OH})_2$
(B) Concentrated solution of $\text{Ca}(\text{OH})_2$
(C) Dry CaO
(D) Dry slaked lime.
13. Mark the element which shows only one oxidation state in its compounds
- (A) F (B) Cl
(C) Br (D) I.
14. Which of the following halogens has the highest bond energy ?
- (A) F_2 (B) Cl_2
(C) Br_2 (D) I_2 .
15. Which halogen is most electropositive ?
- (A) F (B) Cl
(C) Br (D) I.
16. Which one of the following is the true covalent oxide of iodine ?
- (A) I_2O_4 (B) I_2O_5
(C) I_2O_7 (D) I_2O_9
17. Which of the following halogen oxides is ionic?
- (A) ClO_2 (B) BrO_2
(C) I_2O_5 (D) I_4O_9
18. Which of the following hydrogen halide has the highest boiling point ?
- (A) HF (B) HCl
(C) HBr (D) HI.
19. Which of the following is a false statement ?
- (A) Hydrogens are strong oxidizing agents
(B) Halogens show only -1 oxidation state
(C) HF molecules form intermolecular hydrogen bonding
(D) Fluorine is highly reactive.
20. As the atomic number of halogens increases, the halogens

- (A) Lose the outermost electrons less readily
- (B) Become lighter in colour
- (C) Become less denser
- (D) Gain electrons less readily.

21. Which statement is correct about halogens ?

- (A) They are all diatomic and form univalent ions
- (B) They are all capable of exhibiting several oxidation states
- (C) They are all diatomic and form divalent ion
- (D) They can mutually displace each other from the solution of their compounds with metals.

22. Which has the highest molar heat of vaporization ?

- (A) HF
- (B) HCl
- (C) HBr
- (D) HI.

23. Which one of the following reacts with glass ?

- (A) H_2SO_4
- (B) HF
- (C) HNO_3
- (D) $\text{K}_2\text{Cr}_2\text{O}_7$

24. Strongest hydrogen bonding is shown by

- (A) Water
- (B) Ammonia
- (C) Hydrogen fluoride
- (D) Hydrogen sulphide.

25. Fluorine is a better oxidizing agent than Br_2 . It is due to

- (A) Small size of fluorine
- (B) More electron repulsion in fluorine
- (C) More electronegativity of fluorine
- (D) Non metallic nature of fluorine.

26. The element which liberated O_2 from water is

- (A) P
- (B) N
- (C) F
- (D) I.

27. Ozonised oxygen can be obtained from H_2O by the action of

- (A) Conc. H_2SO_4
- (B) KMnO_4
- (C) MnO
- (D) F_2

28. Which one of the following is most basic ?

- (A) F^-
- (B) Cl^-

- (C) Br^- (D) I^-
29. Which one of the following elements can have both positive and negative oxidation state?
- (A) F (B) I
(C) Li (D) He.
30. Least chemical activity is shown by
- (A) NH_3 (B) CH_4
(C) Ar (D) H_2SO_4 .
31. In discharge tube, neon glows
- (A) Bluish (B) Reddish
(C) Pinkish (D) Greenish
32. XeF_2 molecule is
- (A) Linear (B) Trigonal planar
(C) Pyramidal (D) Square planar.
33. The forces acting between noble gas atoms are
- (A) Vander Waals forces
(B) Ion-dipole forces
(C) London dispersion forces
(D) Magnetic forces.
34. Percentage of Ar in air is about
- (A) 1% (B) 2%
(C) 3% (D) 4%
35. The structure of XeF_6 is
- (A) Distorted octahedral
(B) Pyramidal
(C) Tetrahedral
(D) None of the above
36. The noble gas was first time discovered by
- (A) Cavendish (B) William Ramsay
(C) Lockyer (D) Frankland.
37. The coloured discharge tubes for advertisement mainly contain
- (A) Xenon (B) Helium
(C) Neon (D) ARGON
38. Which of the following noble gases does not have an octet of electrons in its outermost shell ?

- (A) Neon (B) Radon
(C) Argon (D) Helium

39. The lowest boiling point of helium is due to its
- (A) Inertness
(B) Gaseous nature
(C) High Polaris ability
(D) Weak Vander Waals forces b/w atoms
40. Which member of group VII A combines with one more halogen?
- a) Cl b) F
c) Br d) I
41. The interhalogen formed by iodine requires fluorine atoms
- a) 3 b) 5
c) 7 d) 8
42. Which one halogen directly reacts with noble gas?
- a) F b) Cl
c) Br d) I
43. Which type of interhalogen is formed by Bromine?
- a) Br – Cl b) Br – F₃
b) Br – F₅ d) Br – I₇
44. Iodine occurs as iodate in
- a) Chile salt peter b) Clauber's salt
c) Blue vitriol d) Oil of vitriol
45. Which one hydride has greater ionic character and had H – bond?
- a) HF b) HBr
c) HCl d) HI
46. Chlorine reacts with hot solution of NaOH to form
- a) NaCl b) NaClO₃
c) NaClO d) All of these
47. Fluorine directly combines with noble gases
- a) Kr b) Xe
c) Rn d) All of these
48. The density of pure liquid HF is less than water due to
- a) Covalent bond formations
b) High electron affinity

- c) Absence of three dimensional net work of H – bond
d) Presence of three dimensional net work of H – bond
49. The order of increasing dissociation of HX at 1000°C is
- a) $\text{HI (33\%)} > \text{HBr (0.5\%)} > \text{HCl (0.014\%)} > \text{HF (0\%)}$
b) $\text{HBr} > \text{HI} > \text{HF} > \text{HCl}$
c) $\text{HCl} > \text{HBr} > \text{HI} > \text{HF}$
d) $\text{HF} > \text{HCl} > \text{HBr} > \text{HI}$
50. The halogen which form unstable oxides is
- a) F b) Cl
c) Br d) I
51. The most recently prepared oxyacid of halogen is
- a) HOCl b) HBrO_3
c) HIO d) HOF
52. The increasing order of acidity and oxidizing power of Oxyacids due to increasing number of oxygen atoms is
- a) $\text{HXO} > \text{HXO}_2 > \text{HXO}_3 > \text{HXO}_4$
b) $\text{HXO}_4 > \text{HXO}_3 > \text{HXO}_2 > \text{HXO}$
c) $\text{HXO}_3 > \text{HXO}_2 > \text{HXO}_4 > \text{HXO}$
d) None of these
53. The average available chlorine in bleaching powder is
- a) 30 – 35% b) 35 – 40%
c) 40 – 45% d) 45 – 50%
54. Which one is false for bleaching powder?
- a) Highly soluble in water
b) Light yellow color powder
c) Oxidizing agent
d) Release Cl_2 gas by reaction with dilute acids
55. Sea weeds are important sources of
- a) F b) Cl
c) Br d) I
56. The acid used for etching glass is
- a) HCl b) HF
c) HNO_3 d) HClO_4
57. Which one interhalogen can further combine with fluorine?
- a) $\text{F} - \text{Cl}$ b) ClF_3
c) BrF_5 d) IF_5
58. Which statement is true?
- a) Except F_2O , the oxides of all halogen are endothermic compounds

- b) The higher oxides of halogen are more stable than lower oxides
c) The bond in the halogen oxides are largely covalent due to similarities in electronegativity
d) All of these
59. Iodine is highly soluble in
- a) Solution of KI b) Alcohol
c) CS₂ d) All of these
60. HF is not preserved in glass bottle because
- a) It reacts with SiO₂ of the glass
b) It reacts with the Al₂O₃ of the composition
c) It reacts with the Na₂O of the composition
d) It reacts with the visible part of light
61. Fluorine can be transported in a special container made up of
- a) Aluminum b) Steel
c) Glass d) Carbon steel
62. Chlorine can be easily liquefied and is usually marketed in
- a) Steel cylinders
b) Iron cylinders
c) Carbon steel cylinders
d) Glass cylinders
63. Halogen do not occur free in nature because they
- a) Are salt producer
b) Are highly reactive
c) Has seven electrons in their valence shell
d) Are non metals
64. Xenon trioxide is formed by
- a) Hydrolysis of xenon hexafluoride
b) Hydrolysis of barium per xenate
c) Hydrolysis of xeondifloride
d) None of these
65. The known fluorides of xenon are
- a) XeF₂ b) XeF₄
c) XeF₆ d) All of the above
66. Mixture of 80% helium and 20% oxygen is used for
- a) Breathing air by seas divers
b) Breathing by patient
c) Breathing by fishes
d) All of these

67. Tyres of large aeroplane contain
- a) He b) Ne
c) Ar d) Kr
68. Which xenon fluoride is impossible?
- a) XeF_2 b) XeF_4
c) XeF_6 d) XeF_3
69. The type of hybridization does the oxygen has in OF_2 is
- a) SP^2 b) d^2SP^3
c) SP^3 d) dSP^3
70. The gas that will liquefy with most difficulty is
- a) He b) CO_2
c) NH_3 d) SO_2
71. Which of the following is radioactive?
- a) Cl b) Br
c) I d) At
72. The electron affinity of halogens is of the order
- a) $\text{F} < \text{Cl} > \text{Br} > \text{I}$ b) $\text{F} < \text{Cl} < \text{Br} < \text{I}$
c) $\text{Cl} < \text{F} < \text{Br} < \text{I}$ d) $\text{I} < \text{Br} < \text{F} < \text{Cl}$
73. Which of the following hydride of halogen is thermally most stable?
- a) HF b) HCl
c) HBr d) HI
74. In which of the following bromine has an oxidation state of + 4?
- a) Br_2O b) BrO_2
c) BrO_3 d) None
75. Electrolysis of Brine produces _____
- a) Chlorine b) Oxygen
c) H_2S d) Nitrogen
76. In which of the following oxyacids, chlorine has an oxidation state of +3?
- a) HClO b) HClO_2
c) HClO_3 d) HClO_4

77. The process based on the oxidation of hydrochloric acid with oxygen is _____
- a) Nelson's cell b) Contact process
c) Down's process d) Deacon's process
78. Chlorine gas is _____ in color.
- a) Yellow b) Greenish Yellow
c) Violet d) Blue
79. To kill bacterial, moist of the drinking water is treated with _____
- a) Nitrogen b) Carbon dioxide
c) Chlorine d) Hydrogen sulphide
80. Phosgene is the common name of _____
- a) Carbon dioxide and phosphate
b) Phosphoryle chloride
c) Carbonyle chloride
d) Carbon tetrachloride
81. Hydrofluoride acid is _____
- a) A powerful oxidizing agent
b) A weak acid
c) A strong acid
d) A good reducing agent
82. Bleaching powder is obtained by the interaction of Cl_2 and _____
- a) Slaked lime
b) Conc. Solution of $\text{Mg}(\text{OH})_2$
c) Dry CaO
d) Dry slaked lime
83. The element which liberates O_2 form water is
- a) P b) N
c) F d) I
84. Which forms maximum compounds with xenon?
- a) F b) Cl
c) Br d) I
85. Which of the following rare gases is not present in the atmosphere?
- a) He b) Xe

- c) Kr d) Rn
86. The structure of XeOF_4 is
- a) Tetrahedral b) Square pyramidal
c) Distorted d) Irregular pentagonal
87. Which of the following fluorides of xenon is not observed?
- a) XeF b) XeF_2
c) XeF_4 d) XeF_6

CHAPTER # 6. Transition Elements

1. Which of the following is a non-typical transition element ?
- (A) Cr (B) Mn
(C) Zn (D) Fe
2. Which of the following is a typical transition metal ?
- (A) Sc (B) Y
(C) Ra (D) Co
3. f-block elements are so called.
- (A) Non-typical transition element
(B) Outer transition elements
(C) Normal transition elements
(D) Inner transition
4. The strength of binding energy of transition elements depends upon
- (A) Number of electron pairs
(B) Number of unpaired electrons
(C) Number of neutrons
(D) Number of protons
5. Group VI B of transition elements contains

- (A) Zn, Cd, Hg (B) Fe, Ru, Os
(C) Cr, Mo, W (D) Mn, Te, Re

6. Which is the formula of tetra-amine chloro nitro platinum (IV) sulphate ?

- (A) $[\text{Pt}(\text{NH}_3)_4(\text{NO}_2)]\text{SO}_4$
(B) $[\text{Pt} \text{NO}_2\text{Cl}(\text{NH}_3)_4]\text{SO}_4$
(C) $[\text{Pt} \text{Cl}(\text{NO}_2)(\text{NH}_3)]\text{SO}_4$
(D) $[\text{Pt}(\text{NH}_3)_4(\text{NO}_2)\text{Cl}]\text{SO}_4$

7. The percentage of carbon in different types of iron products is in the order of .

- (A) Cast iron > wrought iron > steel
(B) wrought iron > steel > cast iron
(C) cast iron > steel > wrought iron
(D) cast iron = steel > wrought iron

8. The colour of transition metal complexes is due to.

- (A) d-d transitions of electrons
(B) Para magnetic nature of transition element
(C) Ionization
(D) Loss of s-electrons

9. Coordination number of Pt in $[\text{Pt} \text{Cl}(\text{NO}_2)(\text{NH}_3)_4]^{2-}$ is.

- (A) 2- (B) 4
(C) 1 (D) 6

10. The total number of transition elements is.

- (A) 10 (B) 14
(C) 40 (D) 50

11. Transition metals have very high melting and boiling points due to.

- (A) Weak binding forces
(B) Strong binding forces
(C) Both of the above
(D) None of the above

12. Substances which are weakly attracted by paramagnetic substances. which type of force are called as

- (A) Weak magnetic field
(B) Strong magnetic field
(C) Feeble magnetic field
(D) None of the above

13. The diamagnetic substances are
- (A) Weakly repelled by a strong magnetic field
 - (B) Strongly repelled by a weak magnetic field
 - (C) Strongly repelled by a weak magnetic field
 - (D) Weakly repelled by a weak magnetic field.
14. Paramagnetic behaviour is caused by the presence of.
- (A) Unpaired electrons
 - (B) Paired electrons
 - (C) Paired protons
 - (D) Paired electrons in an atom, molecule or ion
15. The transition elements includes.
- (A) Ti, Fe, Cr, Ni, Cu etc
 - (B) Ti, Fe, Nb, Ta, Th, etc
 - (C) Mo, W, Zr, Nb, etc
 - (D) Ti, Fe, Co, Ni, Cu, Mo, W, Zr, Nb, Ta, Th, etc
16. Zn has
- (A) Zero unpaired electrons
 - (B) Five unpaired electrons
 - (C) Three unpaired electrons
 - (D) One paired electrons
17. In transition elements the orbital which is responsible for the colour development is.
- (A) s-orbital
 - (B) f-orbital
 - (C) d-orbital
 - (D) o-orbital
18. In $[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$ which wavelength of light is absorbed.
- (A) Yellow light is absorbed while blue and red light are transmitted
 - (B) Green light is absorbed
 - (C) Both of the above
 - (D) None of the above
19. Alloy steels are
- (A) Iron atoms substituted by Cr, Mn, and Ni atoms
 - (B) Iron atoms substituted by Cr, and Mn atoms
 - (C) Iron atoms substituted by Mn and Ni atoms
 - (D) None of the above

20. Such compounds containing the complex molecules or complex ions and capable of.
- (A) Dependent existence are called coordination compounds
 - (B) Independent existence are called coordination compound
 - (C) None of the above
 - (D) A & B
21. A complex compound may contain
- (A) Simple cations and a complexions
 - (B) A complex cations and a simple anion
 - (C) Both of the above
 - (D) None of the above
22. The nomenclature of complex compounds is based upon the recommendation by the
- (A) Inorganic Nomenclature Committee (IUPAC)
 - (B) Organic Nomenclature Committee (IUPAC)
 - (C) Both of the above
 - (D) None of the above
23. In writing the formula of a complex ion the usual practice is to place the symbol of the
- (A) Central metal atom second
 - (B) Central metal atom third
 - (C) Central metal atom 4th
 - (D) Central metal atom 1st
24. Pig iron or cast iron contains
- (A) 0.25% to 2.5% carbon
 - (B) 2.5% to 4.5% carbon
 - (C) 0.12% to 0.25% carbon
 - (D) None of the above
25. Wrought iron is manufactured from
- (A) Pig iron (B) Cast iron
 - (C) Pig iron or cast iron (D) Steel
26. In open hearth process for the manufacturing of steel.
- (A) Using cast iron, wrought iron, or steel scrap
 - (B) Using cast iron
 - (C) just wrought iron
 - (D) None of the above
27. In galvanic cell.
- (A) Al does not releases electrons and changes to Al^{+3} ion

- (B) Al releases and changes to Al^{+3} ion
 (C) Both of the above
 (D) Both of the above
28. The amount of iron destroyed each year by corrosion equal to.
- (A) About 1/4th of its annual production
 (B) About 1/3rd of its annual production
 (C) Both 1/2nd of its annual production
 (D) None of the above
29. Almost all the chromates are
- (A) Blue in colour (B) Green in colour
 (C) Red in colour (D) Yellow in colour
30. $K_2Cr_2O_7$ (potassium dichromate) is used extensively for.
- (A) Dyeing
 (B) Chrome tanning
 (C) As an oxidizing agent
 (D) All of the above are true
31. The location of transition elements is in between _____
- Lanthanides & actinides
 - s and p block elements
 - chalcogens and halogens
 - d and f block elements
32. Compounds attracted by applied magnetic field are called _____
- Diamagnetic
 - Paramagnetic
 - Good conductor
 - Ferromagnetic
33. When light is exposed to transition element, then electrons jumps from lower orbitals to higher orbitals in _____
- f-orbitals
 - s-orbitals
 - p-orbitals
 - d-orbitals
34. The specie which donates electrons to central metal atom in co-ordination sphere is called _____
- Anion
 - Cation
 - Ligand
 - Acid
35. Following ion is a bidentate Ligand?
- Ammonia
 - Oxalate
 - Carbonyl
 - Cyanide
36. The central atom along with Ligand is called _____

- a) Complex ion b) Coordination sphere
c) Ligand d) Complex compound
37. Geometry of complex compounds depends upon _____
a) no. of ligand
b) no. of chelates
c) hybridization of central metal
d) All of above
38. For sp^3d^2 hybridization, the expected geometry will be _____
a) Tetrahedral b) Square planar
c) Trigonal bipyramidal d) Octahedral
39. Any process of chemical decay of metals due to action of surrounding medium is called _____
a) Surrounding b) Enamel
c) Corrosion d) Coating
40. When an active metal like Al come in contact with less active element like Cu, then it produces _____
a) Voltaic cell b) Galvanic cell
c) Electrolytic cell d) a & b
41. Which element has complete d – orbital are
a) Ni b) Fe
c) Zn d) Mn
42. In Ag^{2+} the number of electrons in 4 d orbital is
a) 7 b) 8
c) 6 d) 9
43. A regular decrease in ionic and atomic radii across the lanthanides is called
a) Contraction
b) I.P
c) Lanthanide Contraction
d) Complex formation
44. The magnetic moment can be measured by
a) Gouy's balance b) Haber's balance
c) Down's balance d) All of these
45. The magnetic moment is related to the number of unpaired electrons (n) by the equation
a) $n\sqrt{n+2}$ b) $\sqrt{n(n+2)}$
c) $n\sqrt{n-2}$ d) $\sqrt{n(n-2)}$

46. Diamagnetic compounds are those which have
 a) Paired electrons b) Unpaired electrons
 c) Free electrons d) No electrons
47. An extreme case of Para magnetism is called
 a) Diamagnetism b) Ferro magnetism
 c) Isomerism d) None of these
48. The number of ligands attached to the central metal atom or ion, usually varying from
 a) 2 to 3 b) 2 to 4
 c) 2 to 6 d) 2 to 7
49. Co-ordinate compound with co-ordinate six number have geometry
 a) Tetrahedral
 b) Square planner
 c) May be tetrahedral or square planner
 d) Octahedral
50. Steel is an alloy of iron and is classified into
 a) Mild steel (0.1 – 0.2%C) and medium carbon steel (0.2 to 0.7%C)
 b) Medium carbon steel (0.2 to 0.7%C) and high carbon steel (0.7 to 1.5%C)
 c) Mild and high carbon steel
 d) Mild medium and high carbon steel
51. Ligands are classified into
 a) One b) Two
 c) Three d) Five
52. EDTA is
 a) Monodentate b) Bidentate
 c) Polydentate d) None of these
53. Which one is Bidentate ligand
 a) Cl^{-1} b) NH_3
 c) $\text{NH}_2(\text{CH}_2)$, NH_2 d) EDTA
54. Complexes which are less common have co-ordination number
 a) 4 b) 5
 c) 6 d) All of these
55. Complexes which have octahedral geometry hybridized
 a) SP^3 b) dSP^2
 c) dSP^3 d) d^2SP^3

56. The geometry of a complex depends upon
- a) Co-ordination number
 - b) Type of hybridization of central metal atom
 - c) Chelates
 - d) Both a & b
57. Brass contain 20% zinc and
- a) 80% Cu b) 70% Cu
 - c) 60% Cu d) 50% Cu
58. Bell metal contains
- a) 80% Cu + 20% Zn
 - b) 80% Cu + 20% Sn
 - c) 20% Cu + 80% Zn
 - d) 20% Cu + 80% Sn
59. The formula of blue vitriol is
- a) CuSO_4 b) $\text{CuSO}_4 \cdot 3\text{H}_2\text{O}$
 - c) $\text{CuSO}_4 \cdot 4\text{H}_2\text{O}$ d) $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
60. The transition elements usually have very _____ melting and boiling points.
- a) Low b) High
 - c) Intermediate d) None of these
61. Finely divided iron is used in _____
- a) Haber process
 - b) Catalytic Hydrogenation
 - c) Oxidation of ammonia to nitric oxide
 - d) Contact process
62. _____ reagent can be used to identify Cu^{2+} ion.
- a) Nitric acid b) Sulphuric acid
 - c) Sodium hydroxide d) Potassium dichromate
63. _____ is the important ore of copper.
- a) Malachite b) Bauxite
 - c) Blue Vitriol d) Alumina
64. Titanium is used as catalyst in _____
- a) Haber process
 - b) Catalytic hydrogenation

- c) Oxidation of ammonia to nitric acid
d) Polymerization of ethylene into polyethylene
65. On adding KI to a solution of CuSO_4
- a) Cupric oxide is precipitated
b) Metallic copper is precipitated
c) Cuprous iodide is precipitated with the liberation of iodine
d) No change takes place
66. In $\text{Cr}_2\text{O}_7^{2-}$ every Cr atom is linked to
- a) Two O atoms b) Three O atoms
c) Four O atoms d) Five O atoms
67. A substance which has even number of electrons and has paired spin is called _____
- a) Ferromagnetic b) Paramagnetic
c) Diamagnetic d) None of these
68. The empty spaces between atoms of transition metals in their crystal lattices are called _____
- a) Vacant spaces b) Valence spaces
c) Interstices d) None of these
69. $[\text{Ni}(\text{CN})_4]^{2-}$ is an example of _____
- a) Square planar
b) Tetrahedral complexes
c) Octahedral complexes
d) None of these
70. $[\text{Cu}(\text{NH}_3)_4]^{2+}$ is an example of _____
- a) Square planar
b) Tetrahedral complexes
c) Octahedral complexes
d) None of these
71. $[\text{Co}(\text{NH}_3)_6]^{3+}$ is an example of _____
- a) Square planar
b) Tetrahedral complexes
c) Octahedral complexes
d) None of these
72. The names of _____ are usually unchanged.
- a) Anionic ligands b) Cationic ligands
c) Neutral ligands d) None of these

73. The suffix "ate" at the end of the name of the coordinate complex ion represents a/an _____
- a) Cation b) Anion
c) Cathode b) Anode
74. Ferric oxide is _____
- a) A basic anhydride
b) An acid anhydride
c) An amphoteric anhydride
d) Green in colour
75. The most strongly ferromagnetic element is _____
- a) Fe b) Co
c) Ni d) Os
76. The property of a substance which permits it being drawn into wire is called _____
- a) Softness b) Ductility
c) Brittleness d) Hardness
77. When potassium permanganate is added to a saturated aqueous solution of potassium hydroxide, _____ gas is evolved.
- a) Hydrogen b) Oxygen
c) Carbon dioxide d) None of these
78. AgCl dissolves in a solution of NH_3 but not in water because;
- a) NH_3 is a better solvent than H_2O
b) Ag^+ forms a complex ion with NH_3
c) NH_3 is a stronger base than H_2O
d) Dipole moment of water is higher than NH_3
79. Which of the following is deliquescent?
- a) ZnCl_2 b) Hg_2Cl_2
c) HdCl_2 d) HgCl_2
80. CrO_3 dissolves in aqueous NaOH to give
- a) CrO_4^{2-} b) $\text{Cr}(\text{OH})_2$
c) $\text{Cr}_2\text{O}_7^{2-}$ d) $\text{Cr}(\text{OH})_3$
81. Iron obtained from the blast furnace is called
- a) Pig iron b) Cast iron

- c) Wrought iron d) Steel

CHAPTER # 7
Fundamental Principles of Organic Chemistry

1. The state of hybridization of carbon atom in methane is
- (A) sp^3 (B) sp^2
(C) sp (D) dsP^2
2. In t-butyl alcohol, the tertiary carbon is bonded to
- (A) Two hydrogen atoms
(B) Three hydrogen atoms
(C) One hydrogen atoms
(D) No hydrogen atoms
3. Which set of hybrid orbitals has planar triangular shape
- (A) sp^3 (B) sp
(C) sp^2 (D) dsp^2
4. The chemist who synthesized urea from ammonium cyanate was
- (A) Berzelius (B) Kolbe
(C) Wholer (D) Lavoisier
5. Linear shape is associated with which set of hybrid orbitals ?
- (A) sp (B) sp^2
(C) sp^3 (D) dsp^2
6. A double bond consists of.
- (A) Two sigma bond
(B) One sigma and one pi bond
(C) One sigma and two pi bond
(D) Two pi-bond
7. Ethers show the phenomenon of
- (A) Position isomerism
(B) Functional group isomerism
(C) Metamerism
(D) Cis-trans isomerism.
8. Select from the following the one which is alcohol.
- (A) CH_3-CH_2-OH

- (B) $\text{CH}_3\text{-----O-----CH}_3$
- (C) CH_3COOH
- (D) $\text{CH}_3\text{-----CH}_2\text{-----Br}$

9. Early chemists recognized organic compounds distinct from inorganic compounds because of

- (A) The difference in their origin and properties
- (B) The similarities in their origin but difference in their properties
- (C) Both of the above
- (D) None of the above

10. The vital force theory was rejected by

- A) Jhon Dalton B) Friedrich Wohler
- C) Dmitri Mendeleev D) None of the above

11. We have become dependent for our food medicines and clothing to which compounds.

- (A) Inorganic compounds
- (B) Organic compounds
- (C) Both of the above
- (D) None of the above

12. Natural Gas is a

- (A) Mixture of hydrocarbons
- (B) Methane
- (C) Both of the above
- (D) None of the above

13. In Pakistan the natural gas is used for.

- (A) For power generation only
- (B) In cement and fertilizer industries only
- (C) As a fuel in general industries and for domestic purposes
- (D) All of the above are true

14. At what temperature coal is heated in the observe of air for converting it into coke,
coal gas, and coal tar

- (A) Temperature ranging from 500-1000°C
- (B) Temperature ranging from 100-1000°C
- (C) Temperature ranging from 300-2000°C
- (D) Temperature ranging from 1000-3000°C

15. Cracking of petroleum is taken place by
- A) Thermal cracking B) Catalytic cracking
C) Steam cracking D) All of the above
16. The structure of alkynes can be explained by yet another mode of hybridization called as
- (A) sp^2 hybridization
(B) sp^3 hybridization
(C) sp^5 hybridization
(D) sp hybridization
17. Metamerism arises due to the.
- (A) Equal distribution of carbon atoms
(B) Unequal distribution of carbon atoms
(C) Both of the above are true
(D) None of the above are true
18. Cis-trans isomerism is also called as
- (A) Geometric Isomerism
(B) Position Isomerism
(C) Chain Isomerism
(D) Metamerism
19. Coal, petroleum and natural gas are important sources of.
- (A) Organic compounds
(B) Inorganic compounds
(C) Both of the above
(D) None of the above
20. Organic compounds are classified into
- (A) Acyclic and cyclic compound
(B) Acyclic & Heterocyclic
(C) Non-cyclic
(D) All of the above
21. Rate of reactions of most organic compounds are _____
- a) Very slow
b) Very fast
c) Medium
d) No regular character present
22. Coal is produced after a long time decay of _____

- a) Animals b) Fossils
c) Wood d) Ores
23. Ether functional group can be represented as _____
a) -OH b) R-CO-R
c) R-O-R d) R-COOH
24. 2-propanol can show isomerism as _____
a) Metamerism
b) Functional group isomerism
c) Geometric isomerism
d) None of above
25. The hydrocarbons which give smoke on burning is called _____
a) Aliphatic b) Aromatic
c) Carboxylic acid d) Aldehydes
26. In sp^3 hybridization, the geometry of molecules will be _____
a) Square planar b) Trigonal pyramidal
c) Tetrahedral d) All are possible
27. Only sigma bonds are present in _____
a) Propene b) Butanoic acid
c) Butanal d) Ethoxy butane
28. In alkyne, the hybridization is _____
a) sp^2 b) sp
c) sp d) All
29. Octane no. of any fuel can be improved by _____
a) Pyrolysis b) Reforming
c) Polymerization d) Condensation
30. The fuel having 40% n-heptane & 60% iso-octane will have octane number
a) 40 b) 60
c) 80 d) 90
31. Which of them is heterocyclic organic compound?
a) Benzene b) Cresol
c) Naphthalene d) Pyridine
32. Which one is the mixture of 215 organic compounds?

- a) Water gas b) Coal gas
c) Coal tar d) Crude coal gas
33. Octane number is the percentage of
- a) n-pentane in a mixture
b) n-butane in a mixture
c) n-hexane in a mixture
d) 2, 2, 4 – trimethyl pentane in a mixture
34. During the fractional distillation of petroleum, paraffin oil boils between the ranges
- a) 25°C b) 40 – 180°C
c) 175 – 275°C d) 220 – 350°C
35. The octane number of gasoline may increased by adding
- a) EDTA b) NaOH
c) AgNO₃ d) PB(C₂H₅)₄
36. Which process increases the yield of gasoline from petroleum?
- a) Cracking b) Polymerization
c) Reforming d) Sublimation
37. Consider the reaction

$$3\text{C}_2\text{H}_2 \xrightarrow{\text{Cu-tube}} \text{C}_6\text{H}_6$$
 This is the example of
- a) Pyrolysis b) Polymerization
c) Sublimation d) Addition
38. Which one is acyclic hydrocarbon?
- a) C₆H₆ b) C₂H₆
c) C₆H₁₂ d) CH₄
39. Which type of isomerism is shown by the following compounds?
 CH₃ – CH₂ – CHO, CH₃ – CO – CH₃
- a) Chain isomerism
b) Position isomerism
c) Metamerism
d) Functional group isomerism
40. The type of isomerism found in 1 – butene and 2 – butane is
- a) Position b) Chain
c) Functional group d) Metamerism
41. The members of which of these have similar methods of preparation and properties
- a) Isomers b) Homologues
c) Polymers d) Monomers
42. The maximum number of isomers for an alkene with molecular formula C₄H₈ is
- a) 2 b) 3
c) 4 d) 5

43. Which of the following is most stable ion?
- a) $\text{CH}_3 - \text{H}_2\text{C}^+$ b) $(\text{CH}_3)_2 \text{HC}^+$
c) $(\text{CH}_3)_3 \text{C}^+$ d) All of these
44. Which of the following is not an organic compound?
- a) Urea b) Oxalic acid
c) Natural gas d) Plaster of Paris
45. Kerosine oil is a mixture of
- a) Alkane b) Alkene
c) Alkynes d) All of these
46. Which of the following compounds does not contain an OH group?
- a) Alcohol b) Phenol
c) Aldehyde d) Carboxylic acid
47. The chemical formula of chloride is
- a) CH_3OH b) CCl_3OH
c) CCl_3CHO d) None of these
48. Petroleum in the unrefined form is called _____
- a) Rock oil b) Coal gas
c) Crude oil d) Both a & c
49. Natural gas mainly consists of _____
- a) Methane b) Ethane
c) Propane d) Butane
50. _____ is a mixture of methane, ethane, propane and butane, used as a fuel and for making other organic chemicals.
- a) Refinery gas b) Gasoline
c) Kerosene oil d) Gas oil
51. A large number of organic compounds, especially the unsaturated ones, show a great tendency to unit. This process is termed as _____
- a) Pyrolysis b) Cracking
c) Polymerization d) None of these
52. An isomer of ethanol is _____
- a) Dimethyl ether b) Diethyl ether

- c) Ethylene glycol d) Methanol
53. When ethylene is heated under pressure, a transparent solid polymer, _____ is obtained.
- a) Polyethene b) Ethane
c) Methane d) None of these
54. The quality of petroleum is determined by _____
- a) Decane number b) Octane number
c) Hexane number d) None of these
55. Two or more than two different compounds having the same molecular formula but different carbon chains or skeletons are said to be _____
- a) Chain isomers
b) Position isomers
c) Functional group isomers
d) Metamers
56. The kind of isomerism which depends upon the relative position of the functional group, or the position of double or tripe bond in case of unsaturated compounds is termed as _____
- a) Chain isomerism
b) Position isomerism
c) Functional group isomerism
d) Metamerism
57. Isomerism, which involves compounds having the same molecular formula, but different functional groups are called _____
- a) Chain isomerism
b) Position isomerism
c) Functional group isomerism
d) Metamerism
58. _____ is exhibited by compounds having the same functional group but different alkyl attached to the same multivalent atom.
- a) Chain isomerism
b) Position isomerism

- c) Functional group isomerism
d) Metamerism
59. In cracking usually catalyst used is _____
- a) Pt b) Aluminosilicate
c) Ni d) Tetra ethyl lead
60. In CCl_4 molecule the four valencies of carbon atom are directing towards the corners of a _____
- a) Cube b) Hexagon
c) Prism d) Tetrahedron
61. The general formula $(\text{RCO})_2\text{O}$ represents _____
- a) An ether b) Ketone
c) An ester d) An acid hydride
62. _____ has the longest bond length.
- a) $\text{C} = \text{C}$ b) $\text{C} \equiv \text{C}$
c) $\text{C} - \text{C}$ d) All of these
63. Compounds in which two alkyl groups are attached to an oxygen atom are called _____
- a) Alkanes b) Ethers
c) Alcohols d) Isomer
64. _____ is the common name of methanol.
- a) Formaldehyde b) Acetaldehyde
c) Propionaldehyde d) None of these
65. _____ is the common name of propanone.
- a) Acetone b) Ketone
c) Diethyl ketone d) None to these
66. The properties of organic compounds are due to _____
- a) Covalent bonds b) Functional groups
c) Ionic bonds d) None of these
67. _____ of the following are isomers.
- a) Methyl alcohol and dimethyl ether
b) Ethyl alcohol and dimethyl ether
c) Acetone and Acetaldehyde
d) Propanoic acid and propanone
68. Which compound contains an sp hybridized C

atom?

- a) CH_3CN b) CH_3CHO
- c) CH_3NH_2 d) None

69. Which of the following isomeric substances would be expected to have the lowest boiling point?

- a) Hexane b) 2 – methylpentane
- c) 2, 2 – dimethylbutane d) 3 – methylpentane

70. The isomers must have the same _____

- a) Structural formula b) Molecular formula
- c) Chemical formula d) Physical properties

Chapter # 8

Aliphatic Hydrocarbons

1. Valencies in alkanes are _____
 - a. Completely satisfied
 - b. Partially satisfied
 - c. No satisfied
 - d. No general rules
2. Alkanes containing one branch on main chain are called _____

- a) Iso b) Normal
c) Neo d) Branched
3. When one hydrogen atom of alkane is replaced/removed, then it is called _____
- a. Alkene
b. Alkyl
c. Aldehyde
d. Saturated hydrocarbon
4. Alkanes are also known as _____
- a. Saturated hydrocarbon
b. Unsaturated hydrocarbon
c. Paraffins
d. a & c
5. Sabatier's Sendren's reaction involves _____ in presence of Ni
- a) alkene & H₂ b) alkene & O₂
c) alkene & N₂ d) alkene & Cl₂
6. Zn is a good _____
- a) Metal b) Oxidizing agent
c) Non-metal d) Reducing agent
7. Removal of -COOH is called _____
- a) Carboxylation b) Decarboxylation
c) Esterification d) Hydroxylation
8. Soda lime is a mixture of _____
- a. CaO and KOH
b. CaO and NaOH
c. NaOH and NaO
d. Nao and KOH
9. Malozonide changes into _____
- a) Epoxide b) CO₂ + H₂O
c) Ozonide d) CO+H₂O
10. RCOONa+H₂O [Electrolysis] is known as _____
- a) Bosch reaction b) Kolb reaction
c) Sabatier's reactiuon d) Frankland reaction
11. R-Mg-Br is called _____

- a. Grignard reagent
 - b. Wurtz reaction
 - c. Tollen's reagent
 - d. Pinacol pinacolour reagent
12. Upto _____ C atoms, alkanes are gases
- a) 2
 - b) 3
 - c) 4
 - d) 6
13. Alkanes are less reactive than alkenes due to _____
- a. Presence of sigma bond
 - b. Absence of pi bonds
 - c. Presence of sigma and pi bonds
 - d. No justification available
14. Introduction of nitro group is called _____
- a) Nitration
 - b) Halogenation
 - c) Sulphonation
 - d) None
15. Order of halogenation is _____
- a) $I > Cl > Br > F$
 - b) $F > Cl > I > Br$
 - c) $F > Cl > Br > I$
 - d) $Cl > F > Br > I$
16. Gas is used in fertilizer _____
- a) C_2H_6
 - b) C_2H_4
 - c) C_2H_2
 - d) CH_4
17. General formula of alkenes is _____
- a) C_nH_{2n+2}
 - b) C_nH_{2n-2}
 - c) C_nH_{2n}
 - d) C_nH_{2n-x}
18. The order of dehydration of alcohol is _____
- a. sec > pri > ter
 - b. pri > sec > ter
 - c. ter > sec > pri
 - d. no specificity occurs
19. Removal of halogen and hydrogen atom is _____
- a. Halogenation
 - b. Dehalogenation
 - c. Dehydrohalogenation
 - d. Carbonations
20. Alkenes are produced from Dehalogenation of _____
- a) di-halides alkane
 - b) tri-halides alkane
 - c) vic. Di-halide
 - d) vic. Trihalides

21. Reactivity due to pi- electrons is present in _____
- a) Alkane b) Alkene
c) Alkyne d) b and c
22. π - electrons favour _____
- a. Less reactivity
b. Addition reactions
c. Substitution reactions
d. None
23. Raney nickel is _____
- a. An alloy of Ni-Cu
b. Alloy of Ni-Fe
c. Alloy of Ni-Al
d. Alloy of Ni-Mg
24. Which member of IV A has little tendency to form anions or cations?
- a) Pb b) Sn
c) Ge d) C
25. Alkanes due to little chemical reactivity are also called
- a) Olefins b) Paraffins
c) Grignard's reagent d) None of these
26. Methane and other members of paraffins do not react with aqueous solution of acids, alkalies, KMnO_4 or other oxidizing agents this lack of reactivity is due to its nature
- a) Polar b) Nonpolar
c) Acidic d) Basic
27. Which hybrid orbital will form the compound $\text{CH}_3 - \text{CH} = \text{CH} - \text{CH}_2 - \text{CH}_3$
- a) SP^2 and SP b) SP^2 and SP^3
c) SP d) SP^3
28. Which of the following types of reactions occur when a reactant has a double bond?
- a) Substitution b) Addition
c) Photolysis d) Polymerization
29. Among the following orbital bonds, the angle is minimum between
- a) SP^3 bond b) P_x and P_y orbitals
c) $\text{H} - \text{O} - \text{H}$ in water d) SP bond
30. The compound with highest boiling point is
- a) n - hexane
b) n - pentane
c) 2 - methyl butane

- d) 2, 2 – dimethyl propane
31. Alcoholic KOH solution is used for
- a) Dehydrogenation
 - b) Dehalogenation
 - c) Dehydrohalogenation
 - d) Dehydration
32. Which is least soluble in water?
- a) Phenol
 - b) Benzene
 - c) Benzoic acid
 - d) Ethanol
33. Baeyer's test is used to detect the bond in an organic compound
- a) Single bond
 - b) Double bond
 - c) Triple bond
 - d) All of these
34. Ethylene reacts with Baeyer's reagent to form
- a) CO_2 and H_2O
 - b) Ethyl alcohol
 - c) Ethylene oxide
 - d) Ethylene glycol
35. When ethylene reacts with chlorine to form an oily product. This oily product is called
- a) Baeyer's test
 - b) Bromine water
 - c) Dutch – liquid
 - d) Glycol
36. Which of them is used as general anesthetic?
- a) Ethane
 - b) Ethene
 - c) Ethyne
 - d) Ether
37. The positive part of the adding molecule will go to that carbon which has greater number of hydrogen atoms. This statement is called
- a) Hoffmann's Rule
 - b) Baeyer's Strain theory
 - c) Thiele's theory
 - d) Markownikoff's rule
38. Bromo Ethane on treatment with alcoholic KOH yields
- a) Propane
 - b) Ethene
 - c) Ethylene
 - d) Acetylene
39. Metallic carbide on treatment with water gives out a colourless gas which burns readily in air and gives a red precipitate with $\text{Cu}_2\text{Cl}_2 + \text{NH}_4\text{OH}$. The gas is
- a) CH_4
 - b) C_2H_6
 - c) C_2H_4
 - d) C_2H_2
40. When acetylene reacts with 10% H_2SO_4 in the presence of HgSO_4 yields
- a) CH_3OH
 - b) CH_3COOH
 - c) CH_3CHO
 - d) CH_3OCH_3

41. Dehydration of Ethanol gives
- a) C_2H_4 b) C_2H_2
c) C_2H_6 d) C_2H_4O
42. Which of the following has active hydrogen?
- a) C_2H_2 b) C_2H_4
c) C_2H_6 d) CH_4
43. Treatment of propene with cold concentrated H_2SO_4 followed by boiling water forms
- a) Propyne b) Propanol
c) Propanal d) 2 – Propanol
44. Markownikoff's rule provides guidance for addition of HBr in
- a) $CH_2 = CH - CH_3$
b) $CH_2 = CH_2$
c) $CH_3 - CH = CH - CH_3$
d) None of these
45. The compound having both SP and SP³ hybridized carbon atom is
- a) Propene b) Propane
c) Propyne d) All of these
46. PVC is a polymer of
- a) $CH_2 = CH_2$ b) C_2H_6
c) $CH_2 = CHCl$ d) C_2H_2
47. The structural formula of the compound which yields ethylene upon reaction with Zinc is
- a) $CH_2Br - CH_2Br$ b) C_2H_3Br
c) C_2H_2 d) C_2H_5OH
48. The major reactions occur in alkanes are
- a) Electrophilic addition reaction
b) Nucleophilic substitution reaction
c) Free radical substitution reaction
d) Free radical addition reaction
49. Consider a reaction
 $CH_3 - CH = CH_2 + H - X \rightarrow \text{product}$
The reaction occurs by obeying
- a) Wurtz's rule
b) Frankland's rule
c) Markownikoff's rule
d) Kekule's rule
50. Acetylene is used as a starting material for the preparation of Plastics, Synthetic rubber and Synthetic fibre called
- a) Orlon b) Narlon

- c) Corlon d) Forlon
51. The high polymer of chloroprene is
- a) Polythene b) Benzene
c) Neoprene d) Vinyl acetylene
52. Which one of the following gives Ethyne on electrolysis?
- a) Sodium Acetate b) Sodium Succinate
c) Sodium Formate d) Sodium Fumerate
53. Ethene on interaction with hypochlorous acid gives
- a) Dichloro acetaldehyde
b) Dichlorohydrin
c) Ethylene chlorohydrin
d) Ethylene Dichlorohydrin
54. The compounds having Pi bonds are in general
- a) More reactive b) Less reactive
c) Neutral d) Both a & b
55. Which one will not decolourize bromine water?
- a) Ethene b) Ethyne
c) Propene d) Butane
56. Acetylene adds on to HCN to give
- a) Acetylene cyanide
b) Cyanoacetylene
c) Vinyl ethane
d) Acrylonitrile
57. Action of HOCl with ethene to give ethylene chlorohydrin is an example of
- a) Displacement reaction
b) Substitution reaction
c) Addition reaction
d) Polymerization reaction
58. Chloroform is stored in dark coloured bottles because in light it is
- a) Reduced to CCl₄
b) Oxidized to CCl₄
c) Reduced to phosgene
d) Oxidized to a poisonous phosgene
59. Formation of alkane by the action of zinc on alkyl halide is called _____

- a) Frankland reaction
b) Wurtz reaction
c) Cannizzaro's reaction
d) Kobe's reaction
60. The alkynes have _____
- a) Tetrahedral frame work
b) Planar molecules
c) Linear structure
d) None of these
61. The alkenes have _____
- a) Tetrahedral frame work
b) Planar molecule
c) Linear structure
d) None of these
62. Alkenes undergo _____
- a) Addition reaction
b) Substitution reaction
c) Both addition & substitution reaction
d) None of these
63. _____ does not react with aqueous solution of acids, alkalies, or potassium permanganate or other oxidizing agents and most of the usual laboratory reagents.
- a) Benzene b) Ether
c) Methane d) Acetic acid
64. The IUPAC name for the following compound is
- $$\begin{array}{ccccccc}
 & \text{CH}_3 & & & \text{CH}_2\text{CH}_2\text{CH}_3 & & \\
 & | & & & | & & \\
 \text{CH}_3 - & \text{CH} - & \text{CH} - & \text{CH} - & \text{CH} = & \text{CH}_2 \\
 & & | & & & & \\
 & & \text{CH}_3 & & & &
 \end{array}$$
- a) 4, 5 – dimethyl – 3 – propyl – 2 – hexene
b) 4, 5 – dimethyl – 3 – propyl – 1 – hexene
c) 3– propyl – 3 – dimethylpropyl – 1 – hexane
d) 2, 3 – dimethyl – 4 – propyl – 5 – hexane
65. Markovnikov addition of KCl to propene involves,
- a) Initial attack by a chloride ion
b) Isomerization of 1 – chloropropane
c) Formation of n – propyl cation
d) Formation of isopropyl cation

66. When an aqueous solution of sodium or potassium salt of mono carboxylic acid is subjected to electrolytic, corresponding alkane is formed. This reaction is called _____
- a) Sabatier Senderens Reaction
b) Kolbe's Electrolysis
c) Polymerization
d) Chlorination
67. The elimination of hydrogen halide (HX) from adjacent carbon atoms is called _____
- a) Pyrolysis b) Chlorination
c) Dehydrohalogenation d) None
68. When a mixture of ethane and air is passed over heated silver under pressure, we get _____
- a) Epoxide b) Super oxide
c) Suboxide d) None
69. The process used for the preparation of acetylene is _____
- a) Berthelot Process
b) Sabatier – Senderens Reaction
c) Kolbe's Process
d) Haber's process
70. A simple chemical test to distinguish 1, 3-butadiene and 1-butyne is
- a) Br_2 | CCl_4 b) $\text{Ag}(\text{NH}_3)_2\text{OH}$
c) KMnO_4 d) None

Chapter # 9
Aromatic Hydrocarbons

1. The molecular formula of toluene is _____
a) C_7H_7 b) C_7H_8
c) C_8H_8 d) C_8H_7
2. In benzene sulphonic acid, the sulphonic group is attached with benzene ring through _____
a) Hydrogen b) Oxygen
c) Sulphur d) $-OH$
3. Phenanthrene _____ benzene rings
a) Two b) Three
c) Four d) Five
4. Aniline is a derivative of benzene which contains _____
a) Hydroxyl group b) Amino group
c) Amido group d) Imido group
5. How many π electrons are there in benzene?
a) 3 b) 4
c) 6 d) 8
6. The molecular formula of biphenyl methane is _____
a) $C_{12}H_{10}$ b) $C_{12}H_{12}$
c) $C_{13}H_{10}$ d) $C_{13}H_{12}$
7. When two or more different substituents are attached with a benzene ring, the number 1 position in the ring is given to a high priority group. Which one of the following groups has highest priority?
a) $-NH_2$ b) $-CHO$
c) $-COOH$ d) $-CN$
8. When benzene is substituted by halogens

only, which one of the following halogens is given the number one position in the ring while writing the name of compound?

- a) Bromine b) Chlorine
- c) Flourine d) Iodine

9. Which one of the following is not a meta directing group?

- a) $-\text{CN}$ b) $-\text{OH}$
- c) $-\text{COOH}$ d) $-\text{CHO}$

10. Which pair of groups contains both ortho & para directors?

- a. $-\text{OH}$, $-\text{RCO}$
- b. $-\text{NR}_3$, $-\text{CN}$
- c. $-\text{OCH}_3$, $-\text{CHO}$
- d. $-\text{N}(\text{CH}_3)_2$, $-\text{NH}_2$

11. Michael Faraday discovered benzene in the gas which was produced by destructive distillation of vegetable oil done in _____

- a. The presence of Oxygen
- b. The presence of Hydrogen
- c. The absence of Oxygen
- d. The presence of excessive Oxygen

12. How many moles of H_2 are added up when benzene is heated with hydrogen in the presence of platinum?

- a) Two b) Three
- c) Four d) Six

13. In benzene the C-C bond length is larger than the C-H bond length by a numerical value of _____

- a) 0.307Å b) 0.307 nm
- c) 0.337Å d) 0.307 nm

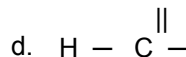
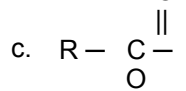
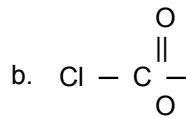
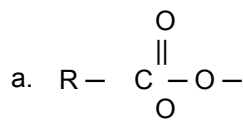
14. The heat of hydrogenation of cyclohexene is _____

- a. -219.5 KJ/ mole
- b. 219.5 calories/ mole
- c. -119 KJ/ mole
- d. -119 Cal/ mole

15. The resonance energy of benzene is _____

- a. 150.5 KJ/ mole
b. 250.5 KJ/ mole
c. 150.5 KJ/ mole
d. 250.5 KJ/ mole
16. The resonance between different structures is represented by_____
- a.
b. \longrightarrow
c. \longleftrightarrow
d. \rightleftharpoons
17. What catalyst is employed when benzene is prepared from acetylene at 70°C?
- a. Zn amalgam
b. AlCl_3
c. Organo-nickel
d. Rancy Rickel
18. Mixture of catalysts $\text{Cr}_2\text{O}_3 + \text{Al}_2\text{O}_3 + \text{SiO}_2$ at 500°C are used when benzene is prepared from_____
- a. Cycloalkene
b. n-hexane
c. Benzene sulphonic acid
d. Sodium benzoate
19. Which one of the following methods will not give benzene?
- a. Heating so. Salt of Benzoic acid with soda lime
b. Distillation phenol with Zn dust
c. Chlorobenzene with NaOH at 360°C & 300atm.
d. Hydrolysis of benzene sulphonic acid with super heated steam.
20. What is the ratio of conc. HNO_3 & conc. H_2SO_4 when nitration of benzene is done at 50°C?
- a) 1:1 b) 2:1
c) 1:2 d) 2:3
21. In Friedel Craft Alkylation, AlCl_3 is used to generate_____
- a. Strong nucleophile
b. Weak nucleophile
c. Strong electrophite
d. Weak electrophite

22. Acylation of benzene is the introduction of _____ on benzene.



23. Acetophenone is a _____

- a) Quinone b) Ketone
c) Aldehyde d) Other

24. Reacting bromine with benzene in the presence of sunlight will result in _____

- a. The rupturing of Benzene ring
b. Substitution reaction
c. Addition reaction
d. No-reaction

25. Benzene does not undergo _____

- a. Substitution reaction
b. Addition reaction
c. Polymerization reactions
d. Oxidation reactions

26. During sulphonation of benzene, H_2SO_4 generates _____ electrophile

- a) HSO_4^- b) SO_2
c) NO_2^- d) NO_2^+

27. Nitronium ion is _____

- a) NO_3 b) NO
c) NO_2^- d) NO_2^+

28. Which compound will readily undergo sulphonation?

- a) Benzene b) Nitro benzene
c) Toluene d) Chlorobenzene

29. Benzene is heated in air with V_2O_5 at 450°C it undergo _____

- a. Substitution reaction

- b. Addition reaction
 - c. Elimination reaction
 - d. Oxidation reaction
30. Which one of the following statement is not correct about benzene?
- a. On hydrogenation, 208 KJ/ mole is liberated
 - b. C-H bond length in benzene is 1.09 Å
 - c. Molecular mass of benzene is 78.108
 - d. Resonance energy of benzene is 150.5 K Cal / mole
31. The preparation of benzene from acetylene can also be said as _____
- a) Oxidation b) Polymerization
 - c) Dehydration d) Condensation
32. What is required other than anhydrous AlCl_3 , when toluene is prepared from Friedel craft reaction?
- a) C_6H_6 b) $\text{C}_6\text{H}_6 + \text{CH}_3\text{Cl}$
 - c) $\text{C}_6\text{H}_5\text{C}_2\text{H}_5$ d) $\text{C}_6\text{H}_5 - \text{CH}_2 -$
33. Replacement of hydrogen of benzene by alkyl group in presence of alkyl halide & ferric chloride is known as _____
- a. Dow's process
 - b. Friedel & Craft acylation
 - c. Friedel & Craft alkylation
 - d. Clemenson reaction
34. Which of the following radical is called benzyl radical?
- a) $\text{C}_6\text{H}_5 -$ b) $\text{C}_6\text{H}_5 - \text{CH} = \text{CH}_2$
 - c) $\text{C}_6\text{H}_5 - \text{CH} -$ d) $\text{C}_6\text{H}_5 - \text{CH}_2 -$
35. Which compound form benzoic acid on oxidation with strong oxidizing agent?
- a) Toluene b) Ethyl benzene
 - c) n-propyl benzene d) all
36. Toluene can be converted to benzoic acid in presence of _____
- a. Dil NaO_4
 - b. Mixture of HNO_3 & H_2SO_4
 - c. Zn dust
 - d. Acidified KMnO_4
37. Which one of the following is benzal chloride?
- a. $\text{C}_6\text{H}_5\text{CH}_2\text{Cl}$

- b. $\text{C}_6\text{H}_5\text{CHCl}_2$
 c. $\text{C}_6\text{H}_5\text{—CH}=\text{CHCl}$
 d. None of the above
38. What is the molecular formula of Benzenetriozone?
 a) $\text{C}_6\text{H}_6\text{O}_9$ b) $\text{C}_6\text{H}_5\text{O}_8$
 c) $\text{C}_6\text{H}_5\text{O}_9$ d) $\text{C}_6\text{H}_6\text{O}_6$
39. The hydrolysis of Benzenetriozone will yield three moles of _____
 a) Glyoxine b) Benzaldehyde
 c) Glycol d) Glyoxal
40. Which of the following will undergo nitration more easily and readily?
 a) C_6H_6 b) $\text{C}_6\text{H}_5\text{CHCl}_2$
 c) $\text{C}_6\text{H}_5\text{CCl}_3$ d) $\text{C}_6\text{H}_5\text{CH}_3$
41. The reaction of toluene with chlorine in the presence of FeCl_3 gives
 a) Benzyl chloride
 b) Benzal chloride
 c) m – Chloro Toluene
 d) O/P Chloro Toluene
42. Benzene is made of
 a) 6 Pi and 6 sigma bonds
 b) 3 Pi and 3 sigma bonds
 c) 3 Pi and 12 sigma bonds
 d) 6 Pi and 3 sigma bonds
43. Common reaction of Benzene and its derivatives are
 a) Electrophilic addition
 b) Electrophilic substitution
 c) Nucleophilic addition
 d) Nucleophilic substitution
44. Benzene when treated with acetyl chloride in the presence of AlCl_3 yields
 a) Acetyl Benzene b) Benzyl Chloride
 c) Benzophenone d) Acetophenone
45. Passing vapors of Phenol over heated Zinc gives
 a) Benzene b) Acetic Acid
 c) Benzoic Acid d) Benzaldehyde
46. Which of the following is not an explosive?

- a) Picric Acid b) Trinitrobenzene
c) Trinitro Toluene d) Nitro benzene
47. Toluene on reaction with acidic KMnO_4 produces
- a) Phenol b) Benzoic acid
c) Benzyl alcohol d) Benzophenone
48. The b.p of P – nitro phenol is higher than that of O – nitro phenol because
- a) Nitro group is O/P group
b) Nitro group is electron donating group
c) Bonding occurs in P – nitro phenol
d) None of these
49. Which of the following can be easily nitrated?
- a) Phenol b) Benzoic acid
c) Nitro benzene d) All of these
50. Aspirin is obtained by reaction of sulphuric acid and
- a) Phenol b) Benzene
c) Acetyl chloride d) None of these
51. Sulphonation of benzoic acid gives
- a) O – benzene sulphonic acid
b) P – benzene sulphonic acid
c) m – benzene sulphonic acid
d) O/P benzene sulphonic acid
52. Benzene can be obtained by
- a) Reaction of zinc and phenol
b) Hydrolysis of benzene sulphonic acid
c) Reduction of benzene chloride
d) All of these
53. o – xylene on oxidation yields
- a) Oxalic acid b) o – Phthalic acid
c) Toluene d) m – Phthalic acid
54. The resonance energy of benzene is
- a) 36 j/mol b) 36 cal/mol
c) 36 Kcal/mol d) none of these
55. The catalyst used for halogenation of benzene is
- a) Cu b) Ni
c) FeCl_3 d) Zn
56. Which one is nitronium ion?

- a) NO_3^{-1} b) NO_2^{+1}
 c) NH_4^{+1} d) None of these
57. Which substituent group decrease the reactivity of benzene, because they
- Increase the electronic density of benzene ring
 - Decrease the electronic density of benzene ring
 - Decrease the stability of phenonium ion
 - Both b & c
58. Benzene on ozonolysis produces
- Benzoic acid
 - Cyclohexane
 - Glyoxal (CHO_2)₂
 - None of these
59. Meta orienting groups decrease the reactivity of benzene because they
- Increase the electronic density of benzene
 - Decrease the electronic density of benzene
 - Decrease the stability of phenonium ion
 - Both b & c
60. Benzene was found by _____ in 1825 in the gas produced by the destructive distillation of vegetable oils.
- Hofmann
 - Michael Faraday
 - Solvay
 - None of these
61. Replacement of hydrogen atom by – SO_2OH is called _____
- Nitration
 - Sulphonation
 - Alkylation
 - Hydrogenation
62. The Kekule structures of benzene are related in which of the following way?
- They are eac equally correct as structure for benzene.
 - Benzene is sometimes one structures and sometime the other.
 - The two structures are in a state of rapid equilibrium.
 - Neither of the two structures describes benzene adequately
63. The conversion of toluene into benzoic acid can be achieved by
- Br_2 , heat and light

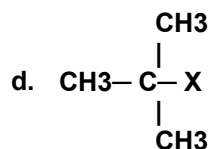
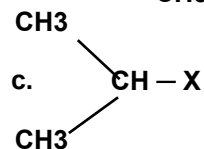
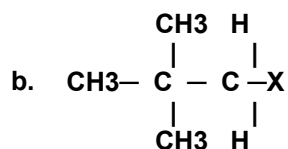
- b) Cl_2 , FeCl_3
 c) KMnO_4 , OH^- , heat (then H_3O^+)
 d) None of the above
64. The conversion of ethyl benzene into 1 – chloro – 1 – phenyl ethane can be achieved by
- a) Cl_2 , light b) Cl_2 , FeCl_3
 c) SOCl_2 d) None
65. Benzene reacts with chlorine to give a substance with formula $\text{C}_6\text{H}_6\text{Cl}_6$. This reaction is brought about by
- a) An acid catalyst b) Ultraviolet radiation
 c) Aluminum oxide d) Iron fillings
66. Which of the following will be least reactive to ring bromination using bromine water?
- a) Toluene b) Nitrobenzene
 c) Chlorobenzene d) Aniline
67. Benzene and cyclohexene can be distinguished by which of the following test?
- a) $\text{AgNO}_3 \mid \text{C}_2\text{H}_5\text{OH}$ b) $\text{Ag}(\text{NH}_3)_2\text{OH}$
 c) $\text{Br}_2 \mid \text{CCl}_4$ d) None
68. Which of the following test can be used to distinguish $\text{C}_6\text{H}_5\text{CH}_2\text{Br}$ and $\text{C}_6\text{H}_5\text{CH}_3$?
- a) $\text{Ag}(\text{NH}_3)_2\text{OH}$ b) $\text{Br}_2 \mid \text{CCl}_4$
 c) $\text{AgNO}_3 \mid \text{C}_2\text{H}_5\text{OH}$ d) Hot KMnO_4

CHAPTER # 10

Alkyl Halides

1. What should be the products when reactants are alcohol & thionyl chloride in the presence of pyridine?
- a) $\text{RCl} + \text{S} + \text{HCl}$ b) $\text{RCl} + \text{SO}_2 + \text{HCl}$
 c) $\text{RCl} + \text{SO}_2 + \text{H}_2\text{O}$ d) $\text{RCl} + \text{S} + \text{H}_2\text{O}$

2. Which C-X bond has the highest bond energy per mole?
 - a) C-F b) C-Cl
 - c) C-Br d) C-I
3. Which alkyl halide has the highest reactivity, for a particular alkyl group?
 - a) R-F b) R-Cl
 - c) R-Br d) R-I
4. 2.8 is the electronegativity of _____
 - a) F b) Cl
 - c) Br d) I
5. Which one is not a nucleophile?
 - a) $\text{C}_2\text{H}_5\text{O}^-$ b) SCN^-
 - c) NH_3 d) H_3C^+
6. The number of molecules taking part in the rate determining step is called _____
 - a) Order of reaction
 - b) Rate of reaction
 - c) Molecularity of a reaction
 - d) Extent of a reaction
7. During SN_2 mechanism, carbon atom changes its state of hybridization from _____
 - a) $\text{sp} \rightarrow \text{sp}^2$ b) $\text{sp}^2 \rightarrow \text{sp}^3$
 - c) $\text{sp}^3 \rightarrow \text{sp}$ d) $\text{sp}^3 \rightarrow \text{sp}^2$
8. What will be the order of reaction of a reaction whose rate can be expressed $R = k [\text{A}] [\text{B}]$?
 - a) Zero b) One
 - c) Two d) Three
9. Which one among the following is not a good leaving group?
 - a) HSO_4^- b) Cl^-
 - c) OH^- d) Br^-
10. What is the order of kinetics in the SN_1 mechanism?
 - a) Zero b) First
 - c) Second d) Third
11. Which alkyl halide out of the following may follow both SN_1 and SN_2 mechanism?



12. In elimination reaction of alkyl halide, which site is more susceptible for the attack of nucleophile?
- a) α -carbon b) β -carbon
c) α -hydrogen d) β -hydrogen
13. When two moles of ethyl chloride react with moles of sodium in the presence of ether, what will be formed?
- a) 2 moles of ethane b) 1 mole of ethane
c) 2 moles of butane d) 1 mole of butane
14. Zn-Cu couple and alcohol generate _____
- a) [H] b) H_2
c) [O] d) O_2
15. When CO_2 is made to react with ethyl magnesium iodide, followed by acid hydrolysis, the product formed is _____
- a) Propane b) Propanoic acid
c) Propanal d) Propanol
16. Grignard reagent is reactive due to _____
- a. The presence of halogen atom
b. The presence of magnesium atom
c. The polarity of C-Mg bond
d. All
17. $\text{S}_\text{N}2$ reaction can be best carried out with _____
- a. Primary alkyl halide
b. Secondary alkyl halide
c. Tertiary alkyl halide
d. All

18. Elimination bimolecular reactions involve _____
- First order kinetics
 - Second order kinetics
 - Third order kinetics
 - Zero order kinetics
19. For which mechanisms, the first step involved is the same?
- E1+E2
 - E2+SN2
 - S1+SN1
 - SN1+SN2
20. The rate of E1 reaction depends upon _____
- The concentration of substrate
 - The concentration of nucleophile
 - The concentration of substrate as well as nucleophile
 - No dependence
21. Alkyl halides are considered to be very reactive compounds towards nucleophile because _____
- They have an electrophilic carbon
 - They have an electrophilic carbon & a good leaving group
 - They have an electrophilic carbon & a bad leaving group
 - They have a nucleophilic carbon & a good leaving group
22. Which one of the following species is not an electrophile?
- NH₃
 - Br⁺
 - H⁺
 - BF₃
23. Which one of the following reactants will be required to form ethane from ethyl chloride?
- Alcoholic KOH
 - Aqueous KOH
 - Alkaline KMnO₄
 - Aqueous NaOH
24. Which one of the following alcohols will be formed when ethyl magnesium bromide reacts with acetone?
- Primary alcohol
 - Secondary alcohol
 - Tertiary alcohol
 - Dihydric alcohol
25. Which one of the following molecules does not form alcohol when reacts with Grignard reagent?
- Formaldehyde
 - Acetaldehyde

c) Propanone d) CO₂

26. In primary alkyl halides, the halogen atom is attached to a carbon which is further attached to how many carbons atoms

- a) Two b) Three
c) One d) Four

27. The reactivity order of alkyl halides for a particular alkyl group is.

- (A) Fluoride > chloride > Bromide > Iodide
(B) Chloride > Bromide > Fluoride > Iodide
(C) Iodide > Bromide > Chloride > Fluoride
(D) Bromide > Iodide > Chloride > Fluoride

28. When CO₂ is made to react with ethyl magnesium iodide, followed by acid hydrogen, the product formed is.

- (A) Propane (B) Propanoic acid
(C) Propanal (D) Propanol

29. Grignard reagent is reactive to.

- (A) The presence of halogen atom
(B) The presence of Mg atom
(C) The polarity of C-Mg atom
(D) None of the above

30. SN₂ reactions can be best carried out with

- (A) Primary alkyl halides
(B) Secondary alkyl halides
(C) Tertiary alkyl halides
(D) All of these

31. Elimination bimolecular reactions involve.

- (A) First order kinetics
(B) Second order kinetics
(C) Third order kinetics
(D) Zero order kinetics

32. For which mechanism the 1st step involved in the same.

- (A) E₁ and E₂ (B) E₂ and SN₂
(C) E₁ and E₂ (D) E₁ and SN₁

33. Alkyl halides are considered to be very reactive compounds towards nucleophiles because.

- (A) They have an electrophilic carbon
 - (B) They have an electrophilic carbon and a good leaving group
 - (C) They have an electrophilic carbon and a bad leaving group
 - (D) They have a nucleophilic carbon and a good leaving group
34. The rate of E₁ reaction depends upon
- (A) The concentration of substrate.
 - (B) The concentration of nucleophile
 - (C) The concentration of substrate as well as nucleophile
 - (D) None of the above
35. Which one of the following is not a nucleophile
- (A) H₂O
 - (B) H₂S
 - (C) BF₃
 - (D) NH₃
- 36) Which Monohaloalkane can not be obtained by the direct action of halogen and alkane?
- a) RCl
 - b) RBr
 - c) RI
 - d) None of these
- 37) For the preparation of RX, by the reaction of Alcohol and Thionyl Chloride requires the presence of a solvent
- a) Ether
 - b) Water
 - c) Pyridine
 - d) Acetone
- 38) The reaction of Sodium metal with alkyl halide in the presence of Ether is called
- a) Wurtz's reaction
 - b) Sabatier reaction
 - c) Frankland's reaction
 - d) None of these
- 39) Carbon carrying negative charge is known as
- a) Carbonium ion
 - b) Carbon ion
 - c) Oxonium ion
 - d) Oxide ion
- 40) Formation of alkane by the action of Zinc on alkyl halide is called
- a) Wurtz's reaction
 - b) Sabatier reaction
 - c) Frankland's reaction
 - d) Kolbe's reaction
- 41) Which of the following is an electrophile?

- a) \overline{OH} b) NH_3
c) ROH d) BF_3
- 42) Alkyl halides give reactions
- a) Electrophilic substitution
b) Nucleophilic substitution
c) Electrophilic addition
d) Nucleophilic addition
- 43) When Ammonia reacts with excess of alkyl halides gives
- a) Primary amine b) Secondary amine
c) Tertiary amine d) Mixture of amines
- 44) Nucleophilic substitution reactions are represented by
- a) E1 b) SN
c) ROH d) RCHO
- 45) SN reactions are classified into types
- a) 4 b) 3
c) 2 d) 1
- 46) SN2 reactions occur in
- a) Primary alkyl halide
b) Secondary alkyl halide
c) Tertiary alkyl halide
d) All of these
- 47) Which SN reaction occurs in two steps?
- a) SN1 b) SN2
c) Both d) None of these
- 48) In SN2 reactions, two reactants are involved in the rate determining step while these reactions occur in
- a) Two steps b) Three steps
c) One step d) Four steps
- 49) Which one of them is organometallic compound?
- a) $RMgX$ b) RX
c) ROH d) RCHO
- 50) When Grignard reagent reacts with formaldehyde to yield
- a) CH_3OH b) C_2H_5OH
c) CH_3COCH_3 d) C_3H_8

- 51) The chemical reaction in which HX is removed from two adjacent carbon atoms of an organic molecule is called
- a) Dehydrogenation
 - b) Dehydrohalogenation
 - c) Dehydration
 - d) Dehalogenation
- 52) Reaction of RX with Ammonia is called
- a) Wurtz's reaction
 - b) Frankland's reaction
 - c) Hoffmann's reaction
 - d) Friedel Craft reaction
- 53) A nucleophile is a
- a) Lewis acid
 - b) Lewis base
 - c) Arrhenius acid
 - d) Arrhenius base
- 54) An electrophile is a
- a) Lewis acid
 - b) Lewis base
 - c) Arrhenius acid
 - d) Arrhenius base
- 55) Rate determining steps in SN1 reaction is always the
- a) Slow step
 - b) Fast step
 - c) Intermediate
 - d) None of these
- 56) Which one of the organic compound is without oxygen?
- a) Ether
 - b) Ester
 - c) Alkyl halides
 - d) Carboxylic acid
- 57) Methyl iodide reacts with silver acetate to yield
- a) Methyl acetate
 - b) Methyl ester
 - c) Methylol phenol
 - d) Acetyl halide
- 58) Grignard reagent reacts with formaldehyde to form
- a) Primary alcohol
 - b) Tertiary alcohol
 - c) Acetic acid
 - d) Ketone
- 59) Both methane ethane may be prepared in one step reaction from
- a) C_2H_4
 - b) CH_3I
 - c) CH_3OH
 - d) C_2H_5OH
- 60) $RMgX$ reacts with PCl_3 giving
- a) Methyl phosphate
 - b) Trimethyl phosphate
 - c) Dimethyl phosphate
 - d) None of these
- 61) Ethyl iodide on its interaction with silver nitrate to yield

- a) Ethyl nitrate b) Ethyl nitrite
c) Nitro methane d) None of these
- 62) Elimination reactions are the reverse of
- a) Electrophilic substitution reaction
b) Nucleophilic substitution reaction
c) Addition reaction
d) Oxidation reaction
- 63) In electron pair donor is a strong base
(\overline{OH} , \overline{OR}) then the dominant reactions will be
- a) SN2 and E2 is a side reaction
b) E2 and SN2 is side reaction
c) E1 and SN2 is side reaction
d) All of these
- 64) E1 reactions occur in
- a) RCH_2X b) R_2CHX
c) R_3CX d) All of these
- 65) The removal of hydrogen from that beta carbon which has fewer H – atoms is called
- a) Wurtz's rule b) Markownikoff's rule
c) Saytzeef's rule d) Hoffmann's rule
- 66) Which of them is organometallic compound?
- a) $RMgX$ b) TEL
c) TML d) All of these
- 67) Formula of Thionyl chloride is _____
- a) $SOCl_2$ b) $ZnCl_2$
c) CH_3Cl d) None
- 68) When metallic sodium in ether is heated with an alkyl halide, a higher alkane is formed. It is called _____
- a) Sulphonation b) Wurtz's reaction
c) Friedel-Crafts reaction d) None
- 69) Which molecule has a zero dipole moment?
- a) CH_3Cl b) CCl_4

- c) CH_2Cl_2 d) CHCl_3
- 70) Grignard's reagent reacts with alkyl halide to form _____
- a) Alkanes b) Alkynes
c) Alkenes d) Alcohols
- 71) On passing CO_2 through Grignard reagent _____ is formed.
- a) Methanoic acid b) Ethanoic acid
c) Alkyl sodium halide d) None of these
- 72) The hydrolysis of alkyl halides by heating with aqueous alkali is a _____ substitution reaction.
- a) Electrophilic b) Nucleophilic
c) Both a & b d) None
- 73) Ethyl bromide can be converted into ethyl alcohol by heating with,
- a) Aqueous KOH b) Ethanoic KOH
c) Moist silver oxide d) Both a & c
- 74) The major product obtained by treating 2 – chlorobutane with alcoholic KOH is
- a) 1 – Butyne b) 2 – Butyne
c) 1 – Butene d) 2 – Butene
- 75) Which of the following is a vic – dihalide?
- a) $\text{ClCH}_2\text{CH}_2\text{Cl}$ b) CH_3CHCl_2
c) $\text{BrCH}_2\text{CH}_2\text{CH}_2\text{Br}$ d) $\text{BrCH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{Br}$
- 76) 3 – Bromohexane can be converted into hexane using
- a) Zn, H^+ b) Cu I
c) $(\text{CH}_3)_2\text{CuLi}$ d) Na
- 77) SN_2 reaction proceeds via the formation of
- a) Carbonation b) Transition state
c) Free radical d) Carbanion
- 78) Which of the following alkyl halide reacts fastest with AgNO_3 ?
- a) $(\text{CH}_3)_3\text{C} - \text{Cl}$ b) $(\text{CH}_3)_2\text{CH Cl}$
c) $\text{CH}_3\text{CH}_2\text{CH}_2\text{Cl}$ d) $(\text{CH}_3)_2\text{CCH}_2\text{-Cl}$

CHAPTER # 11
Alcohols Phenols and Ethers

1. Which one of the following is termed as benzyl alcohol?
a) C_6H_5OH b) $C_6H_5CH(OH)_2$
c) $C_6H_5CH_2OH$ d) None
2. Which one of the following is also known as lactic acid?
a) 3-hydroxy propanoic acid
b) 2-hydroxy propanoic acid
c) 2-hydroxy butanoic acid
d) 3-hydroxy butanoic acid
3. Which one of the following is also known as tartaric acid?
a) 2,3-dihydroxy butanedioic acid
b) 2,2-dihydroxy butanedioic acid
c) 2,3-dihydroxy butanoic acid
d) 2,2-dihydroxy butanoic acid
4. Water gas heated at $450^\circ C$ and 200 atm pressure in the presence of $ZnO + Cr_2O_3$ will produce
a) Methanal b) Methanol
c) Carbonic acid d) Methane
5. The residue obtained after the crystallization of sugar from concentrated sugar cane juice is called _____
a) Mother liquor b) Filtrate
c) Extract d) Molasses
6. The formula of starch is _____
a) $C_{12}H_{22}O_{11}$ b) $C_6H_9O_5$
c) $C_6H_{10}O_5$ d) $C_6H_{12}O_6$
7. The process of fermentation of starch involve many enzymes, the sequence of enzyme used are _____
a) Diastase-maltase-zymase
b) Zymase-maltase-zymase
c) Maltase-diastase-zymase
d) Diastase-zymase-maltase
8. The rectified spirit contain _____
a) 12% alcohol b) 90% alcohol
c) 91% alcohol d) 100% alcohol

9. $\text{K}_2\text{Cr}_2\text{O}_7/\text{H}_2\text{SO}_4$ generate_____
- a) Oxygen b) Hydrogen
c) Nascent oxygen [O] d) Nascent hydrogen [H]
10. The oxidation of isopropyl alcohol will yield_____
- a) Propane b) Propanol
c) Propanone d) Propanoic acid
11. Which one is primary alcohol ?
- a) Buten-2ol
b) Propan-2-ol
c) Butan-1-ol
d) 2,3-Dimethylhexane-4-ol.
12. Action of nitrous acid on ethylamine gives
- a) C_2H_6 b) $\text{C}_2\text{H}_5\text{OH}$
c) $\text{C}_2\text{H}_5\text{OH}$ and C_2H_4 d) $\text{C}_2\text{H}_5\text{OH}$ and NH_3 .
13. Ethyl alcohol is industrially prepared from ethylene by
- a) Permanganate oxidation
b) Catalytic reduction
c) Absorbing in H_2SO_4 followed by hydrolysis
d) Fermentation.
14. Final product formed on reduction of glycerol by hydriodic acid is
- a) Propane b) Propanoic acid
c) Propene d) None of these
15. Phenol on treatment with cone. HNO_3 gives
- a) Picric acid b) Styphnic acid
c) Both d) None
16. Alcohols are
- a) Basic b) Strong acid
c) Amphatere d) Neutral
17. The formula of wood spirit is ?
- a) CH_3COOH b) CH_3OH
c) $\text{C}_2\text{H}_5\text{OH}$ d) None of these
18. Ethanol containing some methanot is called
- a) Absolute spirit b) Rectified spirit
c) Power alcohol d) Methylated spirit
19. Glyccrol is a

- a) Primary alcohol b) Monohydric alcohol
c) Secondary alcohol d) Trihydric alcohol.
20. Glyccrol can be obtained from
- a) Fats b) Propylene
c) Both d) None
21. The enzyme which can catalyse the conversion of glucose to ethanol is
- a) Zymase b) Invertase
c) Maltase d) Diastase.
22. Hydrolytic conversion of sucrose into glucose and fructose is known as
- a) Induction b) Inversion
c) Insertion d) Inhibition.
23. Rectified spirit is a mixture of
- a) 95% ethyl alcohol +5% water
b) 94% ethyl alcohol +4.53% water
c) 94.4% ethyl alcohol + 5.43% water
d) 95.87% ethyl alcohol +4.13% water
24. Which of the following is not a characteristic of alcohol ?
- a) They are lighter than water
b) Their boiling point rise fairly uniformly with rising molecular weight
c) Lower members are insoluble in water and organic solvents but the solubility regularly increase with molecular mass
d) Lower members have a pleasant smell and burning taste, higher members are colourless and tasteless.
25. Alcohols of low molecular weight are
- a) Soluble in water
b) Soluble in water on heating
c) Insoluble in water
d) Insoluble in all solvents
26. Which of the following can work as a dehydrating agent for alcohol ?
- a) H_2SO_4 b) Al_2O_3
c) P_2O_5 d) All.
27. Alcohols react with Grignard reagent to form
- a) Alkanes b) Alkenes
c) Alkynes d) All.
28. Alcohol fermentation is brought about by the action of
- a) CO_2 b) O_2
c) Invertase d) Yeast.

29. Amongst the following phenols which is most acidic?
- a) Picric acid b) 2-Nitrophenol
c) 2,4-Dinitrophenol d) m-Nitrophenol.
30. Which of the following groups will increase the acidity of phenol ?
- a) $-\text{NO}_2$ b) $-\text{CN}$
c) $-\text{X}$ (halogens) d) All.
31. Which is used as an antifreeze ?
- a) Glycol b) Ethyl alcohol
c) Water d) Methanol
32. Baeyer's reagent is
- a) Alkaline KMnO_4 b) Ammonical AgNO_3
c) Ammonical CuSO_4 d) $\text{CaSO}_2/\text{Ca}(\text{OH})_2$
33. The reaction between alcohol and carboxylic acids is called
- a) Esterification b) Hydrolysis
c) Saponification d) Hydrogenation
34. Alcoholic beverages are made of
- a) Ethanol b) Acetic acid
c) Formic acid d) None of these
35. Electrophilic substitution in phenol generally occurs at
- a) O- and P-position
b) Meta positions
c) Only at ortho positions
d) Only at para position
36. Phenol is more readily soluble in
- a) dil. HCl
b) Both NaOH and HCl
c) NaOH sol
d) Sodium bicarbonate solution.
37. The order of reactivity of halogen acids for reaction with $\text{C}_2\text{H}_5\text{OH}$ is
- a) $\text{HCl} > \text{HBr} > \text{HI}$ b) $\text{HI} > \text{HBr} > \text{HCl}$
c) $\text{HBr} > \text{HI} > \text{HCl}$ d) $\text{HBr} > \text{HCl} > \text{HI}$.
38. The reaction of Ethanol with H_2SO_4 does not give
- a) Ethylene
b) Diethyl ether

- c) Acetylene
d) Ethyl hydrogen sulphate
39. Which one of them is a monohydric alcohol?
- a) $\text{CH}_3\text{CH}(\text{OH})_2$ b) $\text{CH}_3\text{C}(\text{OH})_3$
c) $\text{C}_2\text{H}_5\text{OH}$ d) None of these
40. Glycol is alcohol
- a) Monohydric b) Dihydric
c) Trihydric d) Both a & b
41. Wood Naphtha is the commercial name of
- a) Ethyl alcohol b) Aldehyde
c) Methyl alcohol d) Acetic acid
42. Ethyl Alcohol is denatured by adding
- a) CH_3OH & CH_3COOH
b) CH_3COOH & CH_3COCH_3
c) CH_3OH & Pyridine
d) None of these
43. Methylated spirit is
- a) Pure methyl alcohol
b) Methyl alcohol containing water
c) Methanol containing methanal
d) Ethanol containing methanol
44. Alcohol reacts with carboxylic acids, acid anhydrides and acid halides to form
- a) Ether b) Ketone
b) Esters d) Aldehyde
45. Strongly acidic solution of $\text{Na}_2\text{Cr}_2\text{O}_7$ is required for the oxidation of
- a) Primary alcohol b) Secondary alcohol
c) Tertiary alcohol d) All of these
46. Low temperature and excess of Alcohol favors the formation of
- a) Paraffins b) Olefins
c) Ether d) Esters
47. An alcohol produced in the manufacture of soap is
- a) Ethanol b) Propanol
c) Glycerol d) Glycol
48. The formation of Acetaldehyde from ethanol is called

- a) Oxidation b) Reduction
c) Addition d) Substitution
49. Denatured Alcohol is known as
- a) Absolute alcohol b) Wood spirit
c) Methylated spirit d) Vinegar
50. Which one of the following will not take place if 1 – Propanol is under test?
- a) The formation of H_2 when sodium is added to it
b) The formation of 1 – bromopropane when reacts with NaBr and concentrated H_2SO_4
c) The formation of sweet smelling compound when reacts with a mixture of CH_3COOH and concentrated H_2SO_4
d) The formation of yellow colored product when phenyl hydrazine is added to it
51. Bakelite plastic is formed by the polymerization of
- a) Phenol b) Acetylene
c) Ethane d) o/p methylol phenol
52. Acidified potassium dichromate is also called
- a) Chromic acid b) Acetic acid
c) Iodic acid d) Hydrochloric acid
53. Passing vapors of phenol over heated Zinc gives
- a) Benzene b) Acetic acid
c) Benzoic acid d) Benzaldehyde
54. Phenol reacts with dilute HNO_3 in the presence of concentrated H_2SO_4 yields
- a) o/p nitro phenol b) o – nitro phenol
c) p – nitro phenol d) None of these
55. Which of the following is not an explosive?
- a) Picric acid b) TrinitroBenzene
c) Trinitrotoluene d) Nitrobenzene
56. Sodium salt of benzene sulphonic acid on fusion with caustic soda gives
- a) C_6H_5OH b) C_6H_6
c) C_6H_5COOH d) C_6H_5CHO
57. Ether is soluble in
- a) Water b) Dil HCl
c) Conc. KOH d) Conc. H_2SO_4
58. By accepting a proton, oxygen atom of the Ether forms

- a) Carbonium ion b) Carbon ion
c) Oxonium ion d) Oxide ion
59. Williamson's synthesis is used to prepare
- a) Alcohols b) Ethers
c) Esters d) Aldehydes
60. Wax contains
- a) – OH Group b) – CHO Group
c) Ketonic Group d) Ester Group
61. Phenol reacts with Bromine water to form
- a) Picric acid b) TNT
c) Tribromo phenol d) Toluene
62. Which one is methoxy methane?
- a) Olefins b) Paraffins
c) Dimethyl ether d) Dimethyl ketone
63. Alcohol reacts with an organic acid to yield
- a) An ester b) Ketone
c) Alkyl halides d) Ether
64. The conversion of ethyl alcohol into acetaldehyde is called
- a) Reduction b) Addition
c) Oxidation d) Substitution
65. Diethyl ether is soluble in
- a) Water b) Dil HNO_3
c) Conc. H_2SO_4 d) None of these
66. Paraffins dissolve in
- a) Water b) Acid
c) Methyl alcohol d) Benzene
67. Phenol and benzyl alcohol can be distinguish by using
- a) dil HCl b) Baeyer's test
c) Aqueous bromine d) Tollen's test
68. Which one can be used to differentiate between phenol and methyl alcohol?
- a) Aqueous Br_2
b) $\text{Na}_2\text{Cr}_2\text{O}_7$ in dil H_2SO_4
c) Aqueous NaCl
d) Both a & b
69. Which one attack easily on phenol ring

- a) Electrophile b) Nucleophile
c) Acid d) None of these
70. Ethers have no hydrogen bonding but they show weak H – bonding when dissolve in
- a) Alkane b) Formaldehyde
c) Water d) Kerosene oil
71. Alkoxide ion is a powerful
- a) Base b) Acid
c) Salt d) None of these
72. Alkoxide ion is
- a) A powerful acid b) Electrophile
c) Nucleophile d) All of these
73. The test which is used to distinguish between primary, secondary and tertiary alcohols
- a) Lucas Test b) Iodoform test
c) Benedicts test d) Baeyer's test
74. Phenol is weaker acid than
- a) Water b) Organic acid
c) HX d) Both a & b
75. Methyl alcohol can cause _____
- a) Cancer b) Blindness
c) Aneimia d) None
76. Ethyl alcohol is produced on commercial scale by the biological break down of _____
- a) Starch b) Minerals
c) Cellulose d) None of these
77. CH_3OH and $\text{C}_2\text{H}_5\text{OH}$ are highly miscible with water because they exhibits _____
- a) Ionic bonding b) Covalent bonding
c) Hydrogen bonding d) None of these
78. Alcohols may be converted to the corresponding _____ by actions of halogen acids in the presence of ZnCl_2 .
- a) Aldehydes b) Alkyl halides
c) Acyl halides d) None of these
79. During the dehydration of alcohols, relatively

high temperature and moderate alcohol concentration yield the corresponding _____

- a) Ether b) Olefin c) Paraffin d) None

80. Isopropyl alcohol on oxidation gives _____

- a) Ether b) Acetone
c) Ethylene d) Acetaldehyde

81. Rectified spirit contains _____ % alcohol.

- a) 95.6 b) 75.0
c) 100.0 d) 85.4

82. Primary, secondary and tertiary alcohols may be distinguished by using _____

- a) Fehling's solution b) Victor Meyer test
c) Hofmann set d) Beilstein test

83. In cold countries glycerol is added to water in car radiators as it helps to _____

- a) Bring down the specific heat of water
b) Lower the freezing point
c) Reduce the viscosity
d) Make water a better lubricant

84. Phenol can be converted into p hydroxybenzaldehyde by

- a) Friedel crafts reaction
b) Gattermann synthesis
c) Hauban-Hoesch reaction
d) None of the above

85. Phenol on treatment with excess of bromine water give

- a) O – bromophenol
b) P – bromophenol
c) M – bromophenol
d) 2, 4, 5 – tribromophenol

CHAPTER # 12
Aldehydes and ketones

1. The carbon atom of a carbonyl group is
 - a) sp hybridized
 - b) sp^2 hybridized
 - c) sp^3 hybridized
 - d) None of these
2. Aldehydes can be oxidized by
 - a) Tollen's reagent
 - b) Fehling solution
 - c) Benedict solution
 - d) All.
3. Tollen's reagent is
 - a) Ammonical cuprous chloride
 - b) Ammonical cuprous oxide
 - c) Ammonical silver bromide
 - d) Ammonical silver nitrate.
4. Silver mirror is a test for
 - a) Aldehydes
 - b) Thioalcohols
 - c) Acids
 - d) Ethers
5. Aldehydes are produced in atmosphere by
 - a) Oxidation of secondary alcohols
 - b) Reduction of alkenes
 - c) Reaction of oxygen atoms with hydrocarbons
 - d) Reaction of oxygen atoms with ozone
6. At room temperature formaldehyde is

- a) Gas b) Liquid
c) Solid d) None
7. Formalin is _____ % solution of H-C-H in H₂O
- a) 10% b) 20%
c) 40% d) 60%
8. Which does not react with fehling solution ?
- a) Acetaldehyde b) Propanone
c) Glucose d) Formic acid.
9. Aldehydes can be distinguished from ketones by using
- a) Schiff's reagent b) Conc. H₂SO₄
c) Anhy. ZNCl₂ d) Resorcinol.
10. An aldehyde on oxidation gives
- a) An alcohol b) An acid
c) A ketone d) An ether
11. Bakelite is obtained by condensation of
- a) Acetaldehyde and acetone
b) Formaldehyde and phenol
c) Acetaldehyde and phenol
d) None of these
12. Carbonyl group undergoes
- a) eliminatory reaction
b) electrophilic addition
c) nucleophilic addition
d) None of them
13. A nucleophilic reagent will readily attack
- a) Ethylene b) Ethanal
c) Ethanol d) Ethylamine
14. Which of the following compounds gives a ketone with Grignard's reagent ?
- a) Formaldehyde b) Ethanenitrile
c) Ethyl alcohol d) Methyl iodide.
15. Which of the following has carbon with lowest valency?
- a) Carbides b) Alkenes
c) Alkynes d) Alkanes

16. Reduction of aldehydes with HI and P give
- a) Primary alcohols b) Secondary alcohols
 - c) Alkanes d) Tertiary alcohols.
17. Which reaction yields Bakelite?
- a) Urea with HCHO
 - b) Tetramethyl glycol with Hexamethylene diisocyanate
 - c) Phenol and HCHO
 - d) Ethylene glycol and Dimethylterephthalate.
18. Paraaldehyde is a polymer of
- a) Formaldehyde b) Acetaldehyde
 - c) Benzaldehyde d) Propionaldehyde.
19. Acetone is oxidized with
- a) Tollen's reagent
 - b) Fehling solution
 - c) Acidic dichromate solution
 - d) Benedicts solution
20. Formaldehyde when reacted with methyl magnesium bromide gives
- a) C_2H_5OH b) CH_3COOH
 - c) $HCHO$ d) CH_3CHO
21. If formaldehyde and KOH are heated then we get
- a) Acetylene b) Methane
 - c) Methyl alcohol d) Ethyl formate.
22. Acetone on reduction gives
- a) CH_3COOH b) CH_3CHO
 - c) $(CH_3)_2CHOH$ d) C_2H_5OH
23. On oxidation, ketones yield
- a) Alcohol b) Amine
 - c) Carboxylic acid d) Ether
24. Acetone is used in the preparation of
- a) Unbreakable glass
 - b) Smokeless gun powder
 - c) Chloroform
 - d) All of these
25. Calcium acetate on dry distillation gives

- a) Formaldehyde b) Acetone
c) Acetic acid d) Ethanol
26. A silver mirror test is for
- a) Aldehydes b) Ketones
c) Alcohols d) Ethers
27. Aldehydes can be distinguished from ketones by the use of
- a) Bayer's test b) Grignard reagent
c) Iodoform test d) Fehling solution
28. When ammonia reacts with formaldehyde and 8% CH_3OH is called
- a) Bakelite
b) Para Formaldehyde
c) Meta Formaldehyde
d) Urotropine
29. When Hexamethylene tetramine (Methanamine) reacts with fuming HNO_3 to yield a powerful explosive known as
- a) Chloropicrin b) Picric acid
c) Cyclonite d) None of these
30. Which one of the following reactions is not given by formaldehyde?
- a) Reduction of Fehling's solution
b) Reduction of Tollen's solution
c) Formation of phenol complexes
d) Iodoform reaction
31. Which tests are used for the identification of $-\text{CHO}$ in an aldehyde?
- a) Bayer's test b) Fehling's test
c) Tollen's test d) Both b & c
32. Benzaldehyde on reaction with alkaline KMnO_4 yields
- a) Benzophenone b) Picric acid
c) Benzoic acid d) None of these
33. Which of the following undergoes haloform reaction?
- a) HCHO b) CH_3COCH_3
c) C_2H_5 d) $\text{C}_2\text{H}_5\text{O}_2\text{CH}_3$
34. The compound which gives both positive haloform test and Fehling test is
- a) Acetone b) Ethanol
c) Formaldehyde d) Acetaldehyde
35. Silver mirror is carried out for the detection of functional group

- a) Ketone b) Ester
c) Ether d) Aldehyde
36. The reagent which is used to distinguish aldehydes and ketones is
- a) Schiff's reagent b) Fehling reagent
c) Tollen's reagent d) All of these
37. Which one does not pass through aldol condensation?
- a) Formaldehyde b) Acetaldehyde
c) Propanol d) Acetone
38. Acetaldehyde reacts with moist chlorine to form
- a) Acetyl chloride b) Acetone
c) Chloral d) Chloroform
39. The nucleophilic addition reaction of carbonyl group are catalysed by
- a) Salt b) Transition element
c) Acids or bases d) All of these
40. Aldols are those organic compounds which contain functional group
- a) $-NH_2$ and $-COOH$ b) $-CHO$ and $-OH$
c) $-CHO$ and $-CO-$ d) None of these
41. Cannizzaro reaction do not occur in
- a) $H-CHO$ b) C_6H_5CHO
c) CH_3CHO d) All of these
42. Reduction of ketone into alkane in the presence of $Zn-Hg$ is called
- a) Aldol condensation
b) Cannizzaro reaction
c) Clemmensen's reaction
d) None of these
43. Aldehydes and ketones both easily react with
- a) Fehling solution b) Schiff's reagent
c) Grignard reagent d) Tollen's reagent
44. Benzaldehyde reacts with aniline to form
- a) Schiff's base b) Tollen's reagent
c) Borsche's base d) Grignard reagent
45. Almost all the aldehydes and small methyl ketones produce a crystalline white precipitate with saturated solution of

- a) RMgX b) $\text{Cu(OH)}_2 + \text{NaOH}$
c) NaHSO_3 d) ROH
46. Which compound gives brick red precipitate of cuprous oxide with Benedict's solution
- a) Aromatic aldehyde b) Aliphatic aldehydes
c) Aromatic ketones d) Aliphatic ketones
47. Ketones produced a wine red or orange red color on adding
- a) Fehling solution
b) Tollen's solution
c) Alkaline sodium nitroprusside solution
d) All of these
48. The IUPAC name of $\text{CH}_3\text{CH}=\text{CH}-\text{CHO}$ is
- a) But-2-enal b) But-2-en-3-al
c) Methacrolein d) Propenaldehyde
49. The IUPAC name of $\text{OHC}-\text{CHO}$ is
- a) Glyoxal b) Ethane-1, 2-dial
c) Both a & b d) None is correct
50. The IUPAC name of $\text{OHC}-\text{CH}_2-\text{CH}=\text{CH}-\text{CHO}$ is
- a) Pent-2-ene-1, 5-dial
b) Propene dialdehyde
c) Prop-1-en-1, 3-dial
d) None of the above
51. The IUPAC name of $(\text{CH}_3)_2\text{C}=\text{CHCOCH}_3$ is
- a) 4-methylpent-3-en-2-one
b) 2-Methylpent-3-en-4-one
c) Acetyl 2-Methyl-butene-3
d) None of the above
52. Dry distillation of calcium formate yields _____
- a) Ether b) Formaldehyde
c) Acetic acid d) None of these
53. When aldehydes are warmed with _____ red precipitates of cuprous oxide are precipitated.
- a) Grignard's Reagent b) Fehlings solution
c) KMnO_4 d) None of these
54. Acetaldehyde reacts with ammonia to form _____
- a) Elimination b) Substitution products

- c) Addition product d) Resin like product
55. Aldol condensation can occur between _____
- An aldehyde and ketone
 - An aldehyde and ester
 - An aldehyde and benzene
 - None of these
56. An aqueous solution containing about 40% of formaldehyde and a little alcohol is sold under the name of _____
- Formalin
 - Malt-sugar
 - Pyridine
 - Starch
57. A nucleophilic addition of carbonion, generated by the loss of proton from α -position of an aldehyde or a ketone by a base, to the carbonyl group is called _____
- Nitration
 - Aldol Condensation
 - Esterification
 - None
58. The product obtained in the following reaction is _____
- $$\text{CH}_3\text{CH} = \text{CH CHO} \xrightarrow{\text{LiAlH}_4} ?$$
- $\text{CH}_3\text{CH} = \text{CHCH}_2\text{OH}$
 - $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHO}$
 - $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$
 - A mixture of a, b and c.
59. For a carbonyl compound which of the following statements is correct?
- The carbonyl carbon, oxygen and the other two atoms (attached to carbon) are coplanar.
 - The two groups attached to carbonyl carbon are directed at an angle of 120° from each other.
 - The π electron density around oxygen is more than the carbonyl compound.
60. The C = O bond and C = C bond are similar in which of the following ways?
- Both are made up of one sigma bond and

- one pi bond.
b) Both are planar in nature.
c) Both use sp^2 hybrid orbitals of the C atom for their formation.
d) All the above.
61. The reaction of acetaldehyde with conc. H_2SO_4 at room temperature gives
- a) Paraldehyde b) Metaldehyde
c) A mixture of a & b d) None
62. The following reaction
 $CH_3CHO + HCN \rightarrow CH_3CH(OH)CN$ is an example of
- a) Nucleophilic addition
b) Electrophilic addition
c) Nucleophilic substitution
d) Electrophilic substitution

Chapter No. 13
Carboxylic Acids & Their Derivatives

- 1) The function group in Citric acid is
- a) – OH b) – OR
c) – COOH d) – COOR

- 2) Esters have general formula
- a) ROH b) RCHO
c) RCOOR d) RCOOH
- 3) The acid present in butter is called
- a) Formic acid b) Acetic acid
c) Propionic acid d) Butanoic acid
- 4) Which one of the following is the strongest acid?
- a) CH_3COOH b) CH_2ClCOOH
c) CHCl_2COOH d) $\text{C}_2\text{H}_5\text{COOH}$
- 5) Anhydrous acetic is a crystalline, hygroscopic solid and is also known as
- a) Dilute acetic acid
b) Glacial (ice like) acetic acid
c) Methanoic acid
d) None of these
- 6) Acetyl chloride is formed by the reaction of acetic acid with
- a) Thionyl chloride b) Ammonia
c) Alcohol d) Sodium hydroxide
- 7) Acetic acid is a weak acid because in aqueous solution it is
- a) Highly ionized
b) Weakly ionized
c) Insoluble in water
d) No replaceable hydrogen
- 8) Which of the following is a monobasic acid?
- a) H_2SO_4 b) H_2CO_3
c) H_3PO_4 d) CH_3COOH
- 9) Hydrolysis of esters in alkaline medium is called
- a) Saponification b) Hydration
c) Esterification d) None of these
- 10) Which one of the following does not have a carboxylic group?
- a) Benzoic acid b) Ethanoic acid
c) Aspirin d) Picric acid
- 11) Two moles of carboxylic acids on heating in the presence of P_2O_5 yields
- a) Alcohol b) Ether
c) Acetic acid d) Ester
- 12) Which of them is a strong reducing agent?
- a) Formic acid b) Acetic acid

- c) Oxalic acid d) Chloro acetic acid
- 13) Methanoic acid acts as
- a) Powerful oxidizing agent
 - b) Mild oxidizing agent
 - c) Powerful reducing agent
 - d) Mild reducing agent
- 14) Between acetic acid and formic acid, the former one is
- a) Less acidic b) More acidic
 - c) Same strength d) More basic
- 15) Beta hydroxyl propionic acid is
- a) Citric acid b) Aspartic acid
 - c) Oxalic acid d) Lactic acid
- 16) Formic acid can reduce
- a) Mercuric chloride b) Tollen's reagent
 - c) KMnO_4 d) All of these
- 17) The number of H – bonds formed per molecule of carboxylic acid are
- a) 4 b) 3
 - c) 2 d) 1
- 18) The attachment of electron withdrawing groups result into the
- a) Increase of acidity b) Decrease of acidity
 - c) Increase of strength d) All of these
- 19) The first four members of carboxylic acid are completely soluble in water. This is due to
- a) Acidic nature b) H – bonding
 - c) Polymerization d) Reduction
- 20) Sodium bicarbonate when reacts with a compound "X" as result CO_2 liberates with effervescence the compound "X" contain
- a) – OH b) – CHO
 - c) X d) – COOH
- 21) The carboxylic acid which is used for coagulating rubber latex is
- a) Ethanoic acid b) Methanoic acid
 - c) Propanoic acid d) All of these
- 22) Acetic acid when reacts with chlorine in the presence of red phosphorus, the product formed is
- a) Acetyl chloride b) Methyl chloride

- c) Methyl ester d) Chloro acetic acid
- 23) Which of them has two functional groups?
- a) Amino acid b) Salicylic acid
c) Acetone d) Both a & b
- 24) Amino acids having two NH_2 group are
- a) Acidic in nature b) Neutral in nature
c) Saltish in nature d) Basic in nature
- 25) The compound which occur as zwitter ion or dipolar are
- a) Ketones b) Aldehydes
c) Alcohol d) Amino acid
- 26) The dipolar structure of an amino acid is also called
- a) Basic salt b) Acidic salt
c) Neutral salt d) Interval salt
- 27) The test used to identify amino acid is
- a) Tollen's test b) Fehling test
c) Meyer's test d) Ninhydrin test
- 28) A peptide having molar mass up to 10000 is called poly peptide while a poly peptide having molar mass more than 10000 is called
- a) Protein
b) Essential amino acids
c) Non essential amino acids
d) Acidic amino acid
- 29) On heating ammonium acetate yields
- a) Acetic acid b) Acetamide
c) Ether d) Amino acid
- 30) A carboxylic acid contains
- a) Hydroxyl group
b) Carboxyl group
c) A hydroxyl group and carboxyl group
d) A carboxyl group and aldehydic group
- 31) Long chain mono carboxylic acid are called _____
- a) Aliphatic acid b) Aromatic acid
c) Cyclo carboxylic acid d) None of these
- 32) Common name of 1, 3 Propanedioic acid is

- a) Succinic acid b) Oxalic acid
c) Malonic acid d) Phthalic acid
- 33) Vinegar is
- a) 5% solution of acetic acid in H_2O
b) 50% solution of acetic acid in H_2O
c) 25% solution of acetic acid in H_2O
d) 10% solution of acetic acid in H_2O
- 34) Succinic acid contains total carbon atoms
- a) 4 b) 5
c) 3 d) 2
- 35) Carboxylic acid can be prepared from
- a) Alcohol b) Ester
c) Grignard's reagent d) All
- 36) In industrial preparation of Acetic Acid from acetaldehyde, manganous acetate is used as
- a) Catalyst
b) Oxidizing agent
c) To prevent oxidation of Acetic acid into peracetic acid
d) All above
- 37) Which one is not the derivative of carboxylic acid?
- a) Acid Halide b) Amino acid
c) Enthanamide d) Acid amide
- 38) In carboxylic acid, carbonyl carbon is hybridized
- a) sp^3 b) sp^2
c) sp d) None
- 39) Which one of the following will increase the acidity of carboxylic acid?
- a) OH b) NO_2
c) $-CN$ d) Both b & c
- 40) Which one will decrease the acidity of carboxylic acid?
- a) OH b) NH_2
c) Alkyl group d) All
- 41) Which one is less acidic?

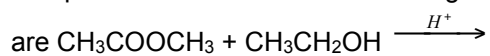
- a) $\text{CH}_2 - \text{COOH}$
 $\quad \quad \quad |$
 $\quad \quad \quad \text{Cl}$
- b) $\text{Cl}_2 - \text{CH} - \text{COOH}$
 c) $\text{CH}_3 - \text{COOH}$
 d) $\text{Cl}_3\text{C} - \text{COOH}$
- 42) Which one is more acidic?
- a) HCOOH b) CH_3COOH
 c) $\text{C}_2\text{H}_4 - \text{COOH}$ d) $\text{C}_2\text{H}_7 - \text{COOH}$
- 43) Which have higher B.P?
- a) CH_3COOH b) $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{OH}$
 c) $\text{CH}_3\text{O} - \text{C}_2\text{H}_5$ d) Both a & c
- 44) Carboxylic ion is represented by how many resonating structure?
- a) 3 b) 2
 c) 1 d) 4
- 45) Higher B.P of carboxylic acid as compared to alcohol of the same m.wt is due to
- a) Strong dispersion forces
 b) Strong dipole dipole interaction
 c) Two H – bonding per molecule
 d) All of these
- 46) The greater acidity of carboxylic acid as compared to alcohol is
- a) Electron donating effect of – OH group
 b) Electron withdrawing effect of COOH gp
 c) Resonance stability of carboxylic ion
 d) All
- 47) Which of the following compounds on reaction with NaHCO_3 liberates CO_2 ?
- a) $\text{C}_2\text{H}_5 - \text{OH}$ b) $\text{CH}_3 - \text{O} - \text{CH}_3$
 c) CH_3COOH d) CH_3CONH_2
- 48) Acetic acid on reduction with LiAlH_4 gives
- a) Ethane b) Ethanal
 c) Ethanol d) Ethylene
- 49) Acetic acid undergo dehydration reaction with P_2O_5 and forms.
- a) Methyl acetate b) Butanoic acid
 c) Acetic anhydride d) Acetaldehyde

- 50) A compound undergo reduction with (LiAlH_4) it also dissolve in aq.NaOH from which it can be recovered by addition of HCl the compound in
- a) Carboxylic acid b) An ester
c) An alcohol d) Acid anhydride
- 51) The solution of which acid is used for seasoning of food?
- a) Formic acid b) Benzoic acid
c) Acetic acid d) Butanoic acid
- 52) Acetamide is prepared by
- a) Heating of ammonium acetate
b) Heating of Ethyl acetate
c) Amonium propionate
d) None
- 53) $\text{R} - \underset{\text{NH}_3}{\text{CH}} - \text{COO}^-$ is called
- a) Zwitter ion b) Dipolar ionic form
c) Internal salt d) All
- 54) Amino acids are the building unit of protein the linkage b/w Amino acid molecules is called
- a) Glycosidic linkage b) Peptide linkage
c) Ether linkage d) All above
- 55) Which of the following is not a fatty acid?
- a) Acetic acid b) Propionic acid
c) Phthalic acid d) Butanoic acid
- 56) Total number of amino acids are
- a) 10 b) 20
c) 30 d) 40
- 57) Total number of essential amino acids
- a) 10 b) 20
c) – 30 d) – 40
- 58) $\text{R} - \underset{\text{NH}_2}{\text{CH}} - \text{COO}^-$ is called

- a) α Amino acid b) β amino acid
c) γ amino acid d) None
- 59) The acid produced in the sting of bees and ants is
- a) Acetic acid b) Formic acid
c) Carbonic acid d) Oxalic acid
- 60) The conversion of acetic acid to methane is an example of
- a) Hydration b) Dehydration
c) Decarboxylation d) Oxidation
- 61) Which class of compound is commonly used for the artificial flavouring in jams?
- a) Aldehyde b) Ester
c) Carboxylic acid d) Ketones
- 62) $\text{CH}_3 - \underset{\text{NH}_2}{\text{CH}} - \text{COO}^-$ is called
- a) Valine b) Glycine
c) Alanine d) Proline
- 63) Which of the following is not an Amino acid?
- a) Alanine b) Aniline
c) Glycine d) Aspartic acid
- 64) Ethyl acetate can be prepared by the action of _____ on carboxylic acid, in the presence of acidic media.
- a) Phenols b) Formalin
c) Pyridine d) Alcohol
- 65) Which of the following carboxylic acid is the strongest?
- a) $\text{CHF}_2 - \text{CH}_2 - \text{CH}_2 - \text{COOH}$
b) $\text{CH}_3\text{CH}_2\text{CF}_2\text{COOH}$
c) $\text{CH}_2\text{F} - \text{CHF} - \text{CH}_2 - \text{COOH}$
d) $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$
- 66) Which of the following will serve as the basis for simple chemical test to distinguish between $\text{CH}_3\text{CH}_2\text{COOH}$ and $\text{CH}_3\text{COOHCH}_3$?
- a) Conc. H_2SO_4 b) Conc. HNO_3
c) $\text{CrO}_3 \mid \text{H}_2\text{SO}_4$ d) $\text{NaHCO}_3 \mid \text{H}_2\text{O}$

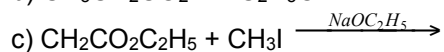
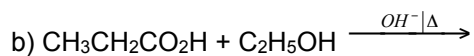
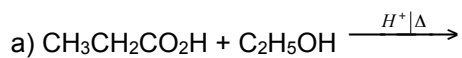
- 67) The IUPAC nomenclature of $C_6H_5CH=CHCOOH$ is
- 3 – Phenyl prop – 2 – enoic acid
 - Cinnamic acid
 - Phenyl acrylic acid
 - 1 – Phynyl – 2 – ethylene carboxylic acid
- 68) Which of the following carboxylic acids has the largest acidity constant, K_a ?
- CH_3COOH
 - $ClCH_2COOH$
 - $Cl_2CHCOOH$
 - Cl_3CCOOH
- 69) Which of the following is not a primary amine?
- Cyclohexylamine
 - 3 – hexylamine
 - 1 – Butylamine
 - Diethylamine
- 70) Which statement about the reaction of 1 – bromobutane and NH_3 is incorrect?
- The reaction specifically gives a primary amine
 - The reaction is a nucleophilic substitution
 - The reaction initially gives a primary amine
 - The reaction may lead to the formation of a quaternary ammonium salt.
- 71) 2 – Bromopentanoic acid can be obtained by
- Pentanoic acid + $Br_2 \xrightarrow{Light}$
 - Pentanoic acid + $Br_2 \xrightarrow{P}$
 - Pentanoic acid + $HBr \longrightarrow$
 - Pentanoic acid + $HBr \xrightarrow{Peroxides}$
- 72) The product obtained in the following reaction is $CH_3CH_2COOH \xrightarrow{Br_2/P} ?$
- $CH_3CHBrCOOH$
 - $BrCH_2CH_2COOH$
 - $BrCH_2CHBrCOOH$
 - A mixture of all the above products
- 73) Acetamide can be prepared by the reaction of ammonia on
- Ethyl acetate
 - Acetyl chloride
 - Acetic anhydride
 - All the above

74) The products obtained in the following reaction



- a) $\text{CH}_3\text{COOC}_2\text{H}_5 + \text{CH}_3\text{OH}$
- b) $\text{CH}_3\text{CH}_2\text{COOCH}_3 + \text{CH}_3\text{OH}$
- c) A mixture of both the above products
- d) None of the above

75) Which of the following reaction will give ethyl propionate?



d) All the above reactions

Chapter # 14

Macromolecules

1. Which of the following is polymerization process?
 - a. The cracking of petroelum
 - b. Fractional disstillation of crude oil
 - c. Formation of polyethen
 - d. Hydrolysis of protiens
2. Which one is addition polymer?
 - a. Nylon-6
 - b. Polystyrene
 - c. Terylene
 - d. Epoxy resin
3. Which is synthetically prepared polymer?
 - a. Animal fat
 - b. Starch
 - c. Cellulose
 - d. PVC
4. Vegetable oils are
 - a. Unsaturated fatty acids
 - b. Glycerides of unsaurtated faty acids
 - c. Glycerides of sttuated fatty acids
 - d. Essential oils obrained from plants
5. The water soluble vitamin is
 - a. A
 - b. D
 - c. K
 - d. C
6. Which of the following element is not present in all proteins
 - a. Carbon
 - b. Hydrogen
 - c. Nitrogen
 - d. Sulphur
7. Hydrolysis of fats is catalysed by
 - a. Urease
 - b. Maltase
 - c. Zymase
 - d. Lipases
8. Which of the follwing statement is incorrect for glucose and sucrose?
 - a. Bothe are soluble in waater
 - b. Both are naturllay occuring
 - c. Both are carbohydrates
 - d. Both are disaccharides
9. Macromolecules may be of
 - a. Inorganic and organic nature
 - b. Inorganic nature
 - c. Organic nature
 - d. None of the above
10. Structure wise the polymers are of
 - a. Linear shaped

- b. Branched linear shaped
 - c. Cross inked linear shaped
 - d. All of the above
- 11. Major type of polymers are
 - a. Homopolymer b. Copolymer
 - c. Teropolymer d. All of the above
- 12. The epoxy resin are fundamentally
 - a. Polyethers b. Polyvinyls
 - c. Polyesters d. None of the above
- 13. Starch is a polymer of
 - a. Beta-D glucose
 - b. Alpha-D glucose
 - c. Gamma-D glucose
 - d. Alpha-beta-D glucose
- 14. the most abundant protiens that are present in the connective tissues throughout the body are
 - a. Legumin b. Collagen
 - c. Both d. None of the above
- 15. Based upon physicochemical properties proteins may be classified into
 - a. Two types b. Four types
 - c. Three types d. Five types
- 16. The primary building blocks of lipids are
 - a. Fatty acids and gycerols
 - b. Glycerols and sterols
 - c. Fatty acids , Glycerols and sterols
 - d. None of the above
- 17. Animal and Vegetable fats and oils gave
 - a. Different structure
 - b. Similar chemical structure
 - c. Both the above depend upon the circumstances
 - d. None of the above
- 18. The enzyme which use as drug in blood cancer is
 - a. Thrombin b. Lasparaginase
 - c. Both of the above d. None of the above
- 19. Different bases found in DNA are
 - a. Cytosine and thiamine
 - b. Adenine and guanine
 - c. All of the above
 - d. None of the above
- 20. Polyethylene is prepared from

- a. Ethene b. Ethylene
c. Ethyne d. Both a and b
21. The group of chemical reagents that take part in life sustaining process is called
- a. Wax b. Refinery gas
c. Food d. None of these
22. A balanced diet must contain at least
- a. Two nutrients b. Four nutrients
c. Six nutrients d. Three nutrients
23. Which one of the following is a single nutrient food?
- a. Starch b. Boney
c. Milk d. Glucose
24. Milk is a food containing
- a. Single nutrient b. Dinutrient
c. Multinutrient d. None of these
25. Which of these are the sources of energy as well as source for building of tissues?
- a. Proteins b. Fats
c. Carbohydrates d. All of these
26. Which nutrients regulate the body processes?
- a. Minerals b. Vitamins
c. Water d. All of these
27. The product of oxidation of glucose is
- a. CO₂ b. Water
c. Energy d. All of these
28. The oxidation of fats produces:
- a. CO₂ b. CO₂ + H₂O
c. CO₂ + H₂O + E d. None of these
29. The oxidation of protein produces urea in addition to
- a. CO₂ b. Water
c. Nitrogen d. Both a & b
30. Glucose is stored in the liver as
- a. Cellulose b. Glycogen
c. Glycerol d. Starch
31. The excess of amino acids are not stored in the body but dominated to form intermediates of

- a) Fat metabolism
 - b) Carbohydrates metabolism
 - c) Protein metabolism
 - d) None of these
32. The general formula of carbohydrates is
- a. $C_n(H_2O)_n$
 - b. $C_{2n}(H_2O)_n$
 - c. $C_n(H_2O)_{2n}$
 - d. None of these
33. Carbohydrates are
- a) Polyhydroxy alcohols
 - b) Polyhydroxy ethers
 - c) Polyhydroxy ester
 - d) Polyhydroxy aldehydes or ketones
34. Monosaccharide and Disaccharides are solid, sweet in taste and soluble in
- a. C_6H_6
 - b. H_2O
 - c. $CHCl_3$
 - d. Acetone
35. Carbohydrates which contain 2 – 10 carbon atoms and not are hydrolysable are called
- a. Monosaccharides
 - b. Oligosaccharides
 - c. Polysaccharides
 - d. None of these
36. Which of the carbohydrates is tasteless?
- a. Glucose
 - b. Fructose
 - c. Sucrose
 - d. Glycogen
37. Sucrose on hydrolysis yields
- a) Glucose + Mannose
 - b) Glucose + Fructose
 - c) Fructose + Mannose
 - d) Mannose + Galactose
38. Glucose is also called
- a. Starch
 - b. Dextrose
 - c. Sucrose
 - d. Mannose
39. The heterogeneous group of organic compounds which provides insulation for the vital organs protects from electrical shock and maintains optimum body temperature is called
- a. Proteins
 - b. Vitamins
 - c. Lipids
 - d. Carbohydrates
40. The nutrients of food which are involved in communication, nervous defenses, metabolic regulation, catalysis and oxygen transport are called
- a. Proteins
 - b. Vitamins
 - c. Lipids
 - d. Carbohydrates

41. Steroids belong to the family of lipids which are
- a. Tricyclic b. Tetracyclic
 - c. Pentacyclic d. Monocyclic
42. Cholesterol is a steroid which is the important precursor of
- a. Sex hormones b. Adrenal hormones
 - c. Vitamin D d. All of these
43. Gallstones contain:
- a) Free cholesterol
 - b) Combine cholesterol
 - c) Starch
 - d) Mannose
44. Enzyme activators are
- a. Organic salt b. Inorganic salts
 - c. Proteins d. Fats
45. Product of saponification is
- a. Glycerol b. Salt of fatty acids
 - c. Nucleic acid d. Both a & b
46. The number of moles of substrate transformed per mole of enzyme per minute at a definite temperature is called
- a. Potency b. Turn over
 - c. Rancidity d. None of these
47. Enzymes are most active at a temperature of:
- a. 30°C b. 40°C
 - c. 45°C d. 50°C
48. Inorganic substances which increase the activity of an enzyme is called
- a. Activators b. Inhibitors
 - c. Coenzymes d. None of these
49. The synthetic fiber composed of an ester of a dihydric alcohol and terephthalic acid is called
- a. Rayon fiber b. Acrylic fiber
 - c. Polyester d. Saran fiber
50. Dacron is the trade name of
- a. Nylon 6, 6 b. Terylene fiber
 - c. Acrylic fiber d. Saran fiber
51. The plastics which are formed by plain polymerization are known as:
- a) Thermoplastics
 - b) Thermosetting plastics

- c) Both
d) None of these
52. The trade name of polytetrafluoroethylene (PTFE) plastic is
a. Dacron b. Teflon
c. Saran d. Nylon
53. The formula of Teflon is
a) $(\text{CCl}_2 - \text{CCl}_2)_n$
b) $(-\text{CF}_2 - \text{CF}_2 -)_n$
c) $(-\text{CBr}_2 - \text{CBr}_2 -)_n$
d) $(-\text{Cl}_2 - \text{Cl}_2 -)_n$
54. Which one of the following is addition polymer?
a. PVC b. Polystyrene
c. Polythene d. All of these
55. The condensation polymers among the following
a. Polyester b. Polyamide
c. Epoxy resin d. All of these
56. PTEF is formed by the polymerization of
a. $\text{CH}_2 = \text{CH}_2$ b. $\text{CH}_2 = \text{CHCl}$
c. $\text{CF}_2 = \text{CF}_2$ d. None of these
57. Fluorine is present in
a. Polythene b. Nylon 6, 6
c. Teflon d. Polyester
58. A copolymer is formed by polymerization of
a) A single type of monomer
b) Two types of monomers
c) Three types of monomers
d) All of these
59. A polymer is formed by polymerization of three different types of monomers is
a. Copolymer b. Homopolymer
c. Monomer d. All of these
60. Yeast is a
a) Bacteria b) Antibiotic
c) Virus d) Fungi
61. Polyester resins are the product of the reaction of _____

- a) Alcohol and aromatic acids
 - b) Polyamines with aliphatic dicarboxylic acids
 - c) Styrene in the presence of catalyst
 - d) Epichlorohydrin with diphenylol propane
62. Enzyme tripsin converts
- a) Amino acid into proteins
 - b) Glucose into glycogen
 - c) Starch into sugar
 - d) Proteins into amino acids
63. The digestion of fat in intestine is aided by
- a) Diffusion
 - b) Peptisation
 - c) Emulsification
 - d) Neutralization
64. Chemical name of Vitamin A is
- a) Thiamine
 - b) Retinol
 - c) Ascorbic acid
 - d) Nicotinamide
65. Glucose and fructose are
- a) Optical isomers
 - b) Functional isomers
 - c) Chain isomers
 - d) Position isomers
66. Starch is a polymer of _____
- a) Glucose
 - b) Fructose
 - c) Lactose
 - d) Maltose
67. On heating glucose with Fehling's solution we get a precipitate of color _____
- a) Yellow
 - b) Red
 - c) Black
 - d) Green
68. The sweetest of all sugars is
- a) Glucose
 - b) Maltose
 - c) Sucrose
 - d) Fructose
69. Amino acids are least soluble in water
- a) At pH = 7
 - b) At pH > 7
 - c) At pH < 7
 - d) At isoelectric point
70. Which of the following is the richest source of energy?
- a) Adenosine triphosphate (ATP)
 - b) Adenosine diphosphate (ADP)

- c) Adenosine monophosphate (AMP)
d) All are equally rich source of energy
71. Digestion of carbohydrates takes place in
- a) Mouth b) Stomach
c) Intestine d) Both a & c
72. Brown sugar can be decolourised by
- a) Bleaching powder b) Soap solution
c) Hypo d) Animal Charcoal
73. The protein responsible for the clotting of blood is
- a) Fibrinogen b) Albumine
c) Globulins d) None of the above
74. Which hormone controls the metabolism of carbohydrates?
- a) Adrenaline b) Insulin
c) Thyroxine d) Oxytocin
75. Which of the following are required by the body in small amount only?
- a) Proteins b) Fats
c) Vitamin d) None
76. Saponification of coconut oil yields glycerol and
- a) Palmitic acid b) Sodium palmitate
c) Oleic acid d) Satiric acid

Chapter 15
Chemical Industries in Pakistan

1. Which process/ reaction gives urea with ammonium carbonate?
a) Hydrogenation b) Dehydration
c) Hydrolysis d) None of the above
2. Urea as a fertilizer contains
a) 57% N b) 73% N
c) 46% N d) 53% N
3. Ammonium nitrate is a useful fertilizer except for
a) Wheat b) Sugar cane
c) Barley d) Paddy rice
4. The phosphoric acid which is used for the preparation of di ammonium phosphate fertilizer is having 60 to 70°C temperature and
a) PH 5-6 b) PH 5.8 to 6.5
c) PH 7-8 d) PH 6 to 7.5
5. Which three elements are needed for the healthy growth of plants
a) N.S.P b) N.Ca.P
c) N.P.K d) N.K.C
6. The nitrogen present in some fertilizer helps plants
a. To fight against diseases
b. To produce fat
c. To undergo photosynthesis
d. To produce proteins
7. Phosphorus helps in the growth of
a) Root b) Leaf
c) Stem d) Seed
8. The wood pulp is derived from the name of which reedy plant
a) Rose b) Sunflower
c) Papyrus d) Water hyacinth
9. Which is not a calcareous material?
a) Lime b) Clay
c) Marble d) Marine shell
10. Ammonium nitrate fertilizer is not used for which crop
a) Cotton b) Wheat
c) Sugar cane d) Paddy rice

11. Cement is very important building material which was first of all introduced by English Mason Joseph Aspdin in
- a) 1875 b) 1824
c) 1860 d) 1920
12. Paper consumption per person in Pakistan is
- a) 5kg b) 4kg
c) 6kg d) 8kg
13. The slurry which contains in the making of cement% of water
- a) 35 to 45 b) 40 to 45
c) 45 to 50 d) None of the given
14. The dried paper is wound in the form of a reel having final moisture of about%
- a) 6 to 8 b) 4 to 6
c) 2 to 8 d) 5 to 8
15. $\text{NH}_2\text{-CO-NH}_2$ is the chemical formula of
- a) Ammonia b) Diamino keton
c) Urea d) Both of b and c
16. The fertility of the soil is improved by _____
- a. Rotation of the crops
b. Adding lime to the acid salts
c. Adding manure and growing legumes
d. All
17. Which of the following is incorrect statement about nitrogen importance?
- a. It enhances plant growth
b. It is involved in the synthesis of protein and nucleic acids
c. It accelerates fruits and flowers growth
d. It is involved in the chlorophyll synthesis
18. The fertilizers, which provide single nutrient from NPK, are called _____ fertilizer
- a) Straight b) Compound
c) Both a and b d) None of the above
19. Which of the following is macronutrient?
- a) Cu b) Cl_2
c) H_2 d) Zn
20. Addition of urea of the soil is _____ reaction
- a) Endothermic b) Exothermic
c) Both a and b d) No heat energy is involved
21. Which of the following is the most suitable catalyst for ammonia synthesis?

- a) Pt b) $\text{ZnO} + \text{Cr}_2\text{O}_3$
c) $\text{Fe}_2\text{O}_3 + \text{MO}_2\text{O}_3$ d) All of the above

22. The cooling of molten urea by air in the tower is called _____

- a) Prilling b) Evaporation
c) Condensation d) Crystallization

23. Which of the following fertilizers is more useful for paddy rice?

- a) Urea b) DAP
c) Ammonium sulphate d) Ammonium nitrate

24. DAP (Diammonium hydrogen phosphate) contains _____ PLANT nutrients.

- a) 60% b) 65%
c) 70% d) 75%

25. Which of the following potassium fertilizers are more useful for horticultural crops, tobacco & potatoes?

- a) KCl b) KNO_3
c) K_2SO_4 d) KMnO_4

26. Calcareous material includes _____

- a) Lime stone b) Marble
c) Chalk d) All of the above

27. Argillaceous material does not include _____

- a) Clay b) Marine shells
c) Slated d) Blast furnace slag

28. Which of the following processes is used for the synthesis of cement?

- a) Dry process b) Wet process
c) Both d) None

29. Phosphorus helps in the growth of _____

- a) Root b) Leave
c) Stem d) Seed

30. How many zones through which the charge passes in a rotary kiln?

- a) 4 b) 3
c) 2 d) 5

31. The nutrients which are required in very small amount for the growth of plants are called.

- a. Nitrogenous fertilizers
b. Micronutrients

- c. Phosphorus fertilizer
 - d. Surfactant
32. Which one of the following set of raw material is most suitable for manufacture of urea?
- a) CH_4 , N_2 and CO_2
 - b) H_2 , N_2 and CO
 - c) H_2 , CO_2 and H_2O
 - d) H_2O , N_2 and H_2
33. Which one of the following statement is correct for urea?
- a. It is a synthetic fertilizer
 - b. It is a natural fertilizer
 - c. It provides micronutrients to plants
 - d. It is an inorganic water soluble compound
34. Which on the following is an inorganic fertilizer?
- a) 36%
 - b) 46%
 - c) 56%
 - d) 66%
35. Which one of the following is an inorganic fertilizer?
- a) Manure
 - b) Urea
 - c) Ammonium nitrate
 - d) All
36. There is only one nitrogen fertilizer which is used as liquid is
- a) NH_4NO_3
 - b) NH_4Cl
 - a) NH_3
 - d) $(\text{NH}_4)_2\text{HPO}_4$
37. Except $\text{Ca}(\text{NO}_3)_2$, NaNO_3 and KNO_3 , all nitrogen fertilizers make the soil
- a) Acidic
 - b) Basic
 - c) Neutral
 - d) None of these
38. Which fertilizer contain 82% nitrogen?
- a) NH_4NO_3
 - b) KNO_3
 - c) NH_4Cl
 - d) NH_3
39. NH_4NO_3 is used as fertilizer for most crops except
- a) Potato
 - b) Sugarcane
 - c) Paddy rice
 - d) Tobacco
40. The percentage of nitrogen in urea is
- a) 40%
 - b) 46%
 - c) 48%
 - d) 50%
41. Potassium fertilizers are used for
- a) Fruits
 - b) Vegetable
 - c) Tobacco
 - d) All of these
42. From which of the following natural fiber is obtained?

- a) Animal b) Vegetable
c) Mineral d) All of these
43. The percentage of nitrogen in ammonia nitrate is
a) 46% b) 33 – 33.5%
c) 82% d) 48%
44. NH_4NO_3 is used as a fertilizer for many crops except paddy rice because
a) Its granules are solid
b) It is poisonous
c) It is neutral
d) The microbial bacteria in flooded field decompose NH_4NO_3 into N_2 gas
45. Manufacturing of super phosphate fertilizer involves
a) Six steps b) Five steps
c) Four steps d) Three steps
46. The percentage of P_2O_5 in triple super phosphate fertilizer is
a) 45 – 46% b) 46 – 48%
c) 33 – 35% d) 40%
47. The percentage of nitrogen in ammonium sulphate is
a) 21% b) 25%
c) 46% d) 82%
48. The Stoichiometric ration of CO_2/NH_3 conversion to urea is about
a) 50% b) 55%
c) 60% d) 65%
49. The chief strength producing constituents of cement is
a) Lime
b) MgO
c) Tricalcium silicate ($3\text{CaO} \cdot \text{SiO}_2$)
d) All of these
50. Clinker is produced by
a) Wet method b) Dry method
c) Bayer's method d) Both a & b
51. The final product which is obtained from the rotary kiln (cement production) is called
a) Clinker b) Pulp
c) Fiber d) Polymer
52. The separation of cellulose fibers by mechanical method or by various chemicals from the matrix result into
a) Clinker b) Pulp

- c) Polymer d) Isomer
53. The industrial abbreviation of Tricalcium aluminate is
- a) C_2S b) C_3S
c) C_3A d) C_4AP
54. Super phosphate fertilizer is formed by the
- a) Acylation of phosphate rock
b) Alkylation of phosphate rock
c) Acidulation of phosphate rock
d) Aromatization of phosphate rock
55. Natural fertilizers are materials derived from
- a) Plants b) Animals
c) Algae d) All of these
56. The fertilizers, which provide single nutrient from NPK, are called _____ fertilizers.
- a) Straight b) Compound
c) Both a & b d) None
57. The substances added to the soil in very small amounts (about 6 grams to 200 grams per acre) are called _____
- a) Macronutrients b) Micronutrients
c) Fertilizers d) None of these
58. A natural fertilizer provide about _____ kg of nitrogen.
- a) 4.5 b) 3.2
c) 2.2 d) 1.5
59. A natural fertilizer provides _____ kg of P_2O_5
- a) 4.5 b) 3.2
c) 2.2 d) 1.5
60. The percentage of nitrogen in ammonium sulphate is _____
- a) 32 – 33.5 b) 50 – 55
c) 80 – 82 d) 20 – 25
61. The percentage of sulphur in ammonium sulphate is _____ %.
- a) 25 b) 21
c) 23 d) 19

62. Ammonium nitrate is sold as a mixture with _____
- a) Soda Ash b) Limestone
c) Zinc d) None of these
63. Any material, which changes the cleaning effect of water is called _____
- a) Fertilizers b) Detergent
c) Acid d) None of these
64. Commercial detergents contain mainly _____
- a) RCOONa b) RONa
c) RSNa d) ROSO_3Na
65. The principle former of almost all glasses is _____
- a) $(\text{SiO}_2)_n$ b) $(\text{SiO}_3)_n$
c) $(\text{SiO}_2)_x$ d) None of these
66. Calcarious material includes _____
- a) Lime stone b) Marble
c) Chalk d) All of the above
67. Cement is a mixture of so many compounds roasted in rotary kiln. Which substances has greater percentage?
- a) Lime (CaO) b) Silica (SiO_2)
c) Alumina (Al_2O_3) d) Magnesia (MgO)
68. The important function of burning zone in the rotary kiln is _____
- a) To dry the moisture of slurry
b) To decompose lime stone to unslaked lime
c) Combination of different oxides like CaO , SiO_2 , Fe_2O_3 and Al_2O_3 .
d) To reduce the impurities
69. Asbestos is a _____
- a) Mineral fiber b) Animal fiber
c) Vegetable fiber d) None of these

Chapter # 16
Environmental chemistry

1. Peeling of ozone umbrella is due to
 - a) CFCs
 - b) PAN
 - c) CO₂
 - d) Coal burning
2. DDT is
 - a) Biodegradable pollutant
 - b) Nondegradable pollutant
 - c) Not a pollutant
 - d) An antibiotic
3. Increasing skin cancer and high mutation rates are
 - a) Acid rain
 - b) Ozone depletion
 - c) CO pollution
 - d) CO₂ pollution
4. Sewage water is purified by
 - a) Microorganisms
 - b) Light
 - c) Fishes
 - d) Aquatic plants
5. UV radiations bring about
 - a) Skin cancer
 - b) Mouth cancer
 - c) Lung cancer
 - d) Liver cancer
6. Which one is more toxic?
 - a) Carbon
 - b) CO₂
 - c) CO
 - d) SO₂
7. Soil salinity can be measured by
 - a) Conductivity meter
 - b) Photometer
 - c) Protometer
 - d) Potometer
8. Biodegradable pollutant is
 - a) Plastic
 - b) Asbestos
 - c) Sewage
 - d) Mercury
9. Lead is
 - a) Air pollutant
 - b) Soil pollutant
 - c) Radioactive pollutant
 - d) Noise pollutant
10. Air pollution is not caused by
 - a) Pollen grains
 - b) Hydroelectric power

c) Industries and automobiles

11. CO is harmful for humans as it

- a) Is carcinogenic
- b) Is antagonistic to CO₂
- c) Has high affinity for hemoglobin than oxygen
- d) Is destructive of O₃

12. Disease caused by eating fish in water contaminated with industrial waste having mercury

- a) Minamat disease b) Brights diseases
- c) Hashimoto's disease d) Arthritis

13. Drawbacks of DDT as pesticide is

- a) It becomes ineffective after some time
- b) It is less effective than others
- c) It is not easily degraded in nature
- d) its high cost

14. Fish die in water bodies polluted by sewage due to

- a) Pathogens
- b) Clogging of gills by silt
- c) Reduction in oxygen
- d) Foul smell

15. Drained sewage has BOD

- a) More than that of water
- b) Less than that of water
- c) Equal to that of water
- d) None of the above

16. Which one of the following forms a toxic substance by combining with hemoglobin in blood.

- a) CO₂ b) CO
- c) O₂ d) CH₄

17. UV radiation from the sun causes a reaction that produces

- a) Fluorides b) CO
- c) SO₂ d) O₃

18. The half of the atmosphere is concentrated in the lowerkm

- a) 3.5 km b) 4.5 km
- c) 5.6 km d) 10 km

19. Acid rain is due to increase in atmospheric concentration of

- a) Ozone and dust b) CO₂ and CO
- b) SO₃ and CO d) SO₂ and NO₂

20. Detergents are sodium salts of

- a) Calcium suphonates
- b) Barium sulphonates
- c) Sodium carbonates
- d) Benzene sulphonates

21. BOD is the amount of

- a) Carbon dissolved in water
- b) Amount of oxygen in water
- c) Amount of bacteria in water
- d) All of the above

22. The oxygen demand in water is determined by

- a) Disulphate ion b) Dichromate ion
- c) Bicarbonate ion d) Bidentate ion

23. Herbicides are used for removal of

- a) Insects
- b) Fungus on the plants
- c) Undesired plants
- d) Rodents

24. DDT is one of the most powerful

- a) Insecticide b) Herbicides
- c) Fugicide d) Pesticide

25. Most hazardous metal pollutant of automobiles exhaust is

- a) Mercury b) Cadmium
- c) Lead d) Copper

26. Photochemical smog is related to pollution of

- a) Air b) Water
- c) Soil d) Nostic

27. Environmental pollution affects

- a) Biotic components
- b) Plants only
- c) Man only
- d) Biotic and abiotic components of environment

28. Ozone hole refers to

- a) Hole in ozone layer
- b) Reduction in thickness of ozone layer in stratosphere
- c) Reduction of thickness of ozone layer in troposphere
- d) Increase concentration of ozone

29. Eutrophication causes reduction in

- a) Dissolved hydrogen b) Dissolved oxygen
- c) Dissolved salts d) All of the above

30. The yellow color in photochemical smog is due to presence of _____

- a) Carbon dioxide b) Nitrogen dioxide
- c) Chlorine gas d) None

31. Which one of the following makes the bulk of hydrosphere's content?

- a) Oceans
- b) Glaciers & ice
- c) Fresh water lakes and ponds
- d) All have equal distribution

32. Chlorination of water may be harmful if the water contains _____

- a) Ammonia b) Dissolved oxygen
- c) Carbon dioxide d) All

33. Which substance can be used for disinfection water?

- a) KMnO_4 b) Alums
- c) Ozone d) All

34. Which statement is wrong?

- a) The amount of ozone layer is greater in the region close to the equator.
- b) Ozone acts as filter for UV radiations
- c) In the polar region, it acts as pollutant
- d) CFCs play effective role in removing O_3 in the stratosphere.

35. Which of the following factors help to measure quality of water?

- a) DO b) BOD

36. c) COD d) All of the above
In the purification of portable water, the coagulant used is _____
- a) Alum b) Nickel sulphate
c) Copper sulphate d) Barium sulphate
37. Newspaper can be recycled again and again how many times?
- a) 2 b) 3
c) 4 d) 5
38. The main pollutant of leather tanneries in the waste water is _____
- a) Chromium III b) Chromium II
c) Sodium d) Copper
39. Which of the following air pollutants is quiet killer?
- a) CO₂ b) CO
c) NO₂ d) N₂O₄
40. The outer part of the earth is present in
- a) Lithosphere b) Hydrosphere
c) Biosphere d) Atmosphere
41. The components of lithosphere are
- a) Soil
b) Mineral of earth crust
c) Organic matter of earth crust
d) All of these
42. The envelop of gases surrounding the earth's surface which absorb most of the cosmic rays and maintain the balance is
- a) Atmosphere b) Bio sphere
c) Hydrosphere d) Lithosphere
43. Ozone is located in
- a) Troposphere b) Stratosphere
c) Mesosphere d) Thermosphere
44. Which fuel on combustion produces fumigative and sulphurous emission?
- a) Coal b) Gasoline
c) Kerosene oil d) Diesel and furnace oil
45. The solid or liquid particles with diameter ranges from 0.01 μ or less up to about 100 μ are

- a) Aerosols b) Dust
c) Smoke d) All of these
46. The pollutants responsible for eye, nose, throat, bronchial tract and respiratory tract irritation are
- a) H_2S b) CO_2
c) NH_3 d) Both a & c
47. The air pollutant which is responsible for corrosion and erosion is
- a) SO_2 b) Carbon
c) Smoke d) Aerosol
48. Carbon and soot accelerate the corrosion and erosion due to
- a) Acidic nature
b) Basic nature
c) Absorption or adsorption of the gaseous pollutant upon these particulars mater
d) All of these
49. The pollutant which adhere to stones bricks and surface and cause fouling are
- a) Smoke and dust
b) Smoke and aerosols
c) Aerosols and dust
d) None of these
50. Clean rain is
- a) Basic b) Slightly basic
c) Slightly acidic d) All of these
51. The PH of neutral rain water is
- a) 5.6 b) 4.6
c) 3.6 d) 2.6
52. The pollutant which play an important role in smog formation
- a) CO b) NH_3
c) H_2S d) All of these
53. Photochemical smog is
- a) Oxidizing smog b) Reducing smog
c) Neutral smog d) Smoke
54. Reducing smog is formed by the combination of
- a) Smoke b) Fog
c) Dust d) Smoke & fog
55. The pollutant which results into ozone depletion is
- a) CO b) NH_3

- c) H_2S d) Freon
56. The photochemical smog is also called oxidizing smog which has high content of oxidant like
- a) O_3 b) SO_2
c) NH_3 d) All of these
57. Presence of heavy metals in water causes
- a) Mental retardation b) Nervous disorder
c) Cancer d) All of these
58. Industrial waste water contains
- a) Occluded & dissolved gases
b) Inorganic salts & organic compounds
c) Pathogens
d) All of these
59. Drinking water should have
- a) Turbidity less than 10ppm
b) pH between 7 to 8.5
c) should be free from diseases causing bacteria
d) all of these
60. The concentration of dissolved molecular oxygen in pure drinking water is
- a) 2 to 4ppm b) 3 to 4ppm
c) 4 to 8ppm d) 8 to 10ppm
61. The content of DO in polluted water is
- a) Less than 4ppm b) 4ppm
c) 6ppm d) 8ppm
62. The COD (Chemical Oxygen Demand) of water can be determined directly by treating with
- a) Dichromate ions b) Chloride ions
c) Oxide ions d) None of these
63. Water having high value of COD means the water is
- a) Pure b) Dust
c) Aerosols d) Effluent
64. The techniques used to kill pathogens present in drinking water are
- a) Chlorination b) Ozone
c) UV irradiation d) All of these
65. Pathogens present in polluted water can killed by chlorination but cannot remove
- a) Viruses b) Taste

- c) Odour d) All of these
66. The process in solid waste is burnt at high temperature ranging from 900 to 1000°C
- a) Chlorination b) Ozonation
c) Incineration d) All of these
67. The chief pollutant which likely to deplete ozone layer is
- a) SO₂ b) NH₃
c) CO₂ d) CF₂Cl₂
68. Which one of the following is not a component of environment?
- a) Hydrosphere b) Lithosphere
c) Biosphere d) Stratosphere
69. The yellow color in photochemical smog is due to presence of _____
- a) Carbon dioxide b) Nitrogen dioxide
c) Chlorine gas d) None
70. Which statement is wrong?
- a) The amount of ozone layer is greater in the region close to the equator.
b) Ozone acts as filter for UV radiations.
c) In the polar region, it acts as pollutants.
d) CFCs play effective role in removing O₃ in the stratosphere.
71. In the purification of portable water, the coagulant used is _____
- a) Alum b) Nickel Sulphate
c) Copper sulphate d) Barium sulphate
72. The pH range of acid rain is
- a) 5 – 7 b) 6 – 8
c) 6.5 – 7 d) Less than 5
73. The %age of SO₂ from Volcanic eruption is
- a) 47 b) 57
c) 67 d) 77
74. Which layer consist of thick layer of ozone?
- a) Stratosphere b) Thermosphere
c) Troposphere d) Mesosphere

75. Main reason of acid rain is
- a) SO_2 / CO_2
 - b) NO_2 / P_2O_5
 - c) SO_2 / NO_2
 - d) All
76. The thickness of ozone layer is
- a) 25 to 50 km
 - b) 25 to 28km
 - c) 3 km only
 - d) 1 km only
77. The decrease in the thickness of ozone layer present in the stratosphere is termed as
- a) Ozone hole
 - b) Ozone depletion
 - c) Ozone coagulation
 - d) Both a & b