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 15oC 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.

11. Which of the following has highest first ionization potential?

    (A) Carbon (B) Oxygen
    (C) Nitrogen (C) 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
    (B) NO_2 (C) 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 eletronegativities are 1.2 and 3.0, the bond formed between them would be

    (A) Ionic (B) covalent
    (C) Coordinate (C) 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) CO_2
(C) SiO_2 (D) SnO_2

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) $^{23}_{11}W$ b) $^{40}_{19}X$
c) $^{26}_{13}Y$ d) $^{32}_{16}Z$

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) H_2 b) H
c) H^+ d) H^-

59. Cesium and Francium are liquids above
a) 10^oC b) 15^oC
c) 20^oC d) 30^oC

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) H_2 b) N_2
c) O_2 d) CO_2

65. The ionic halides in order of decreasing m.p and b.p can be arranges 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) Mendeleeve

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 t 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) L^{+} 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) $F \rightarrow F$ b) $Cl \rightarrow Cl$
c) $O \rightarrow O^2$ d) $H \rightarrow H$

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^- form a water molecule.

97. When steam is passed over red hot coke at 1000^oC, 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) $Na_2B_4O_7$ (D) $Na_2CO_3H_2O$

6. The ore $CaSO_42H_2O$ 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) Na_2CO_3. H_2O (B) KCl
(C) KCl. $MgCL_2$. $6H_2O$ (D) NaCl

12. The chemical formula of Alumite (Alum stone) is.

(A) KCl. $MgCl_2$. $6H_2O$
(B) KCl
(C) $Na_2B_4O_7$. $10H_2O$
(D) K_2SO_4 $Al(SO_4)_3$. $2Al(OH)_3$

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

15. Magnesium is an essential constituent of.

(A) Storaata (B) Plants
(C) ChlorophyII (C) 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 Ca_3 (PO_4) 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.

B

(A) K, Rb, Cs (B) K, Na, Cs,
(C) K, Li, Na (D) None of the above

21. Potassium, rubidium and caeslium are so highly reactive that they react with ice even at .

(A) -100^oC (B) -200OC
(C) -50^oC (D) -0^oC

22. Among the alkaline earth metal which has least reactivity even upto 800^oC

(A) Ba (B) Cs
(C) Li (D) Be

23. Plaster of paris is formed after heating upto 100^oC

(A) $Mg(NO_3)_2$ (B) $CaSO_4$, $2H_2O$(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
C) Both of the above D) None of the above

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

(A) Lime
(B) Aluminium
(C) Aliminium 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 $CaSO_4.2H_2O$ has the general name____

a) Gypsum b) Dolomite
c) Sodium metal d) Sodium hydroxide

36. Crystals of $Na_2CO_3.\ 10H_2O$ 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. $Na_2SO_3.10H_2O$ 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) $MgCO_3.CaCO_3$
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 that 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) $NaHCO_3$
c) Na
d) Na_2CO_3

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) $NaHCO_3$
b) NaOH
c) Na_2CO_3
d) NaCl

61. The formula of plaster of Paris is

a) $CaSO_4$
b) $CaSO_4.H_2O$
c) $CaSO_4.2H_2O$
d) $2CaSO_4.H_2O$

62. Which of the following is fluorspar?

a) CaO
b) $CaCO_3$
c) CaF_2
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) $CaSO_4.2H_2O$
b) $CaSO_4.H_2O$
c) $CaSO_4$
d) $MgSO_4$

67. Which one is commonly used as a laboratory desicator?

a) Na_2CO_3
b) NaCl
c) $CaCl_3$
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) $Ca(OH)_2$ b) $Mg(OH)_2$
c) $Sr(OH)_2$ d) $Ba(OH)_2$

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) $Na(NH_3)_2$ 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) $Ca(ClO_4)_2$
c) $Ca(ClO_3)_2$ d) $Ca(ClO_2)_2$

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 colemnite is.

(A) $Ca_2B_6O_{11}. 5H_2O$ (B) $CaB_4O_7. 4H_2O$
(C) $Na_2B_4O_7. 4H_2O$ (D) $CaNaB_5O_9. 8H_2O$

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) $Al_2O_3. 2H_2O$
(C) Al_2O_3 (D) $Al_2O_3. H_2O$

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 change
(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) Calicium (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 form 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 CO_2
(B) CO, CO_2 and C_3O_2 carbon sub oxide
(C) CO, CO_2, C_2C_3
(D) None of the above

24. China wares are made form 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) 2^{nd} in number
(C) Third most abundant
(D) 4^{th} 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) –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) $Na_2B_4O_7.10H_2O$ d) $H_2B_4O_7$

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) $H_2B_4O_7$ 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) $Na_2S_2O_3$

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) $H2SO_4$ 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) $(SiO_2)n$ b) $(CO_2)n$
c) $(CH_2 – CH_2)n$ 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) PbO_2
c) Pb_3O_4 d) $Pb(CH_3COO)$

80. The Octet rule is not followed by

a) Boron on BCl_3 b) Oxygen in H_2O
c) Nitrogen in NH_3 d) Phosphorus in PH_3

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 looses 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 ($NA_3 AlF_6$) 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 Arhenius 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 fro aluminum extraction, the electrolyte used is

a) $Al(OH)_3$ in NaOH solution
b) An aqueous solution of $Al_2(SO_4)_3$
c) A molten mixture of Al_2O_3 and Na_3AlF_6
d) A molten mixture of AlO(OH) and $Al(OH)_3$

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

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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_2O_3
(C) N_2O_4 (D) N_2O_5

4. The brown gas is formed when metal reduces HNO_3

(A) N_2O_5 (B) N_2O
(C) NO_2 (D) NO

5. Laughing gas is chemically

(A) NO (B) N_2O
(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 grown VIA are non-metals except.

(A) S (sulphur) (B) O (oxygen)
(C) PO (pollinium) (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) $FeSO_4.NO$ b) $FeSO_4.NO_2$
c) $FeSO_4.NO_3$ 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) Moderatory 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 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 minor 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) con 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) C_2H_5OH 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

$NH_4NO_3 \xrightarrow{gentle\ heating}$ 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 oxide 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) S_8 chain b) S_2 chains
c) S_4 rings d) S_8 rings

66. The number of hydroxyl group in phrophosphoric acid is

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

67. When liquid sulphur at one atmospheric pressre 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) SO_2 b) MnO_2
c) Al_2O_3 d) CrO_3

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

a) Phyrosulphrous 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

1. Which is the most volatile compound?

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

2. Which one is the anhydride of $HClO_4$?

(A) Cl_2O (B) ClO_2
(C) Cl_2O_6 (D) Cl_2O_7

3. Which of the following halogens does not form its oxyacids ?

(A) Fluorine (B) Chlorine
(C) Bromine (D) Iodine

4. Bromine is obtained on a commercial scale from

(A) Caliche (B) Carnallite
(C) Common salt (D) Cryolite.

5. Iodine deficiency in diet is known to cause

(A) Beriberi (B) Goitre
(C) Rickets (D) Night blindness

6. Which one of the halogen acid is a liquid ?

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

7. Which of the following acid is weakest

(A) HClO (B) HBr
(C) $HClO_3$ (D) HCl.

8. In which of the following, oxygen has +2 oxidation number ?

(A) F_2O (B) Cl_2O
(C) Na_2O_2 (D) Na_2O.

9. Fluorine does not show positive oxidation states due to the absence of

(A) d-orbitals (B) s-orbitals
(C) p-orbitals (D) None

10. 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 $Ca(OH)_2$
(B) Concentrated solution of $Ca(OH)_2$
(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 (B) 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
(B) 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) $K_2Cr_2O_7$

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 eletronegativity 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 H2O 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, noon 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 disperslon forces
(D) Magnetic forces.

34. Percentage of Ar in air is about

(A) 1% (B) 2%
(C0 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
(B) 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 interhalogenis formed by Bromine?

a) Br – Cl b) $Br - F_3$
b) $Br - F_5$ d) $Br - I_7$

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) $NaClO_3$
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 then 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 1000oC is

a) HI (33%) > HBr (0.5%) > HCl (0.014%) > HF (0%)
b) HBr > HI > HF > HCl
c) HCl > HBr > HI > HF
d) HF > HCl > HBr > 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) HXO > HXO_2 > HXO_3 > HXO_4
b) HXO_4 > HXO_3 > HXO_2 > HXO
c) HXO_3 > HXO_2 > HXO_4 > 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) F – 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) CS_2 d) All of these

60. HF is not preserved in glass bottle because

a) It reacts with SiO_2 of the glass
b) It reacts with the Al_2O_3 of the composition
c) It reacts with the Na_2O 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) XeF_2 b) XeF_4
c) XeF_6 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) $d2SP^3$
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) F < Cl > Br > I b) F < Cl < Br < I
c) Cl < F < Br < I d) I < Br < F < 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 $Mg(OH)_2$
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 VIB 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) $[Pt(NH_3)4(NO_2)]SO_4$
(B) $[Pt\ NO_2Cl\ (NH_3)4]SO_4$
(C) $[Pt\ Cl\ (NO_2)(NH_3)]SO_4$
(D) $[Pt\ (NH_3)4(NO_2)Cl]SO_4$

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 $[t\ Cl\ (NO_2)(NH_3)4]-2$ 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 which type of force are called as paramagnetic substances.

(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) Unparied electrons
(B) Paired electrons
(C) Paired protons

(D) Paired electrons in an aton, 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, Ci, 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 $[Ti(H_2O_6)]_3+$ 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 catoins 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 4rth
(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) Ai 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_____

a. Lanthanides & actinides
b. s and p block elements
c. chalcogens and halogens
d. d and f block elements

32. Compounds attracted by applied magnetic field are called_____

a) Diamagnetic b) Paramagnetic
c) Good conductor d) Ferromagnetic

33. When light is exposed to transition element, then electrons jumps from lower orbitals to higher orbitals in_____

a) f-orbitals b) s-orbitals
c) p-orbitals d) d-orbitals

34. The specie which donates electrons to central metal atom in co-ordination sphere is called _____

a) Anion b) Cation
c) Ligand d) Acid

35. Following ion is a bidentate Ligand?

a) Ammonia b) Oxalate
c) Carbonyl d) 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^3d2 hybridization, the expected geometry will be_____

a) Tetrahydral 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) $NH_2(CH_2)$, 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) $d2SP^3$

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) $CuSO_4.3H_2O$
c) $CuSO_4.4H_2O$ d) $CuSO_4.5H_2O$

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 ethyle into polyethylene

65. An 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 $Cr_2O_7^2$ 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 have even number of electrons and have paired spin is called _____

a) Ferromagnetic b) Paramagnetic
c) Dimagnetic 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. $[Ni(CN)_4]^{2-}$ is an example of _____

a) Square planar

b) Tetrahedral complexes
c) Octahedral complexes
d) None of these

70. $[Cu(NH_3)_4]^{2+}$ is an example of _____

a) Square planar
b) Tetrahedral complexes
c) Octahedral complexes
d) None of these

71. $[Co(NH_3)_6]^{3+}$ 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 u 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. CrO3 dissolves in aqueous NaOH to give

a) CrO_4^{2-} b) $Cr(OH)_2$
c) $Cr_2O_7^{2-}$ d) $Cr(OH)_3$

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) Sp3 (B) Sp2
(C) Sp (D) dsP2

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) Sp3 (B) Sp
(C) Sp2 (D) dsp2

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) Sp2
(C) Sp3 (D) dsp2