CHEMISTRY

61. Which of the following do not respond to borax bead test?

1) Mn^{2+} salts 2) Al^{3+} salts 3) cobalt salts 4) Ni^{2+} salts

62. The formula of Thenard's blue is

1) $Co(BO_2)_2$ 2) $CoZnO_2$ 3) $Fe_4[Fe(CN)_6]_3$ 4) $CoO.Al_2O_3$

63. Which of the following statements about photochemical smog is wrong?

1) It can be controlled by controlling the release of NO_2, hydrocarbons, ozone etc

2) Plantation of some plants like pinus helps in controlling photochemical smog

3) It has high concentration of oxidizing agents

4) It has very low concentration of oxidizing agents

64. Which salt on strong heating does not give reddish – brown coloured gas?

1) $LiNO_3$ 2) $NaNO_3$ 3) $Pb(NO_3)_2$ 4) $AgNO_3$

65. The pair(s) of ions where both the ions are precipitated upon passing H_2S gas in presence of dilute HCl, is(are)

I. Cu^{2+}, Pb^{2+} II. Ba^{2+}, Zn^{2+} III. Hg^{2+}, Bi^{3+} IV. Bi^{3+}, Fe^{3+}

1) both I and III 2) both II and III

3) both I and II 4) both III and IV

66. The pollutants which come directly in the air from sources are called primary pollutants. Primary pollutants are sometimes converted into secondary pollutants. Which of the following belongs to secondary air pollutants?

1) NO 2) Hydrocarbons

3) CO 4) Peroxyacetyl nitrate

67. An aqueous solution of a mixture of two inorganic salts, when treated with dilute HCl, gave a precipitate P and a filtrate X. The precipitate P was found to dissolve in hot water. The filtrate X remain unchanged , when treated with H_2S in a dilute mineral acid medium. However, it gave a precipitate Y with H_2S in an ammonical medium. The precipitate Y gave a coloured solution S, when treated with H_2O_2 in an aqueous NaOH medium. The precipitate P contains

1) Pb^{2+} 2) Hg^{2+} 3) Hg_2^{2+} 4) Ag^{+}

68. Upon treatment with ammonical H_2S, the metal ion that precipitate as a sulphide is:

1) Al^{3+} 2) Fe^{3+} 3) Mg^{2+} 4) Zn^{2+}

69. Which one of the following is correct statement?

1) Classical smog is also called as oxidizing smog

2) Methane, water vapour and CFCs are all green house gases

3) Photochemical smog is a mixture of smoke, fog and SO_2

4) Classical smog results from the action of sunlight on unsaturated hydrocarbons and nitrogen oxides produced by automobiles and factories.

70. Which of the following hydrogen halides react(s) with $AgNO_3(aq)$ to give a precipitate that dissolves in $Na_2S_2O_3(aq)$?

A. HF B. HCl C. HBr D. HI

1) only A 2) only A and B

3) only B,C and D 4) only A and D

71. Passing H_2S gas into a mixture of $Mn^{2+}, Ni^{2+}, Cu^{2+}$ and Hg^{2+} ions in an acidified aqueous solution precipitates

1) MnS and NiS 2) CuS and HgS 3) only MnS 4) only HgS

72. The viable particulate is:

1) smoke 2) dust 3) mist 4) algae

73. A gas X is passed through water to form a saturated solution. The aqueous solution on treatment with a solution of $AgNO_3$, gives a white precipitate. The aqueous solution also dissolves Mg ribbon with the evolution of a colourless gas Y. Then

1) $X = CO_2, Y = Cl_2$ 2) $X = Cl_2, Y = H_2$

3) $X = H_2, Y = Cl_2$ 4) $X = Cl_2, Y = HCl$

74. When a KI solution is added to a metal nitrate, a black precipitate is produced which dissolves in an excess of KI to give an orange solution. The metal ion is:

1) Hg^{2+} 2) Cu^{2+} 3) Bi^{3+} 4) Pb^{2+}

75. I. Excessive sulphate in drinking water cause disease such as methemoglobinemia

II. Excessive nitrate in drinking water causes laxative effect

III. Phosphate containing fertilizers cause water pollution. Addition of such compounds in water bodies causes enhanced growth of algae

IV. Photochemical smog causes corrosion of metals, stones, building materials

Then the correct statement is:

1) only I 2) only I and III

3) only III and IV 4) only II and IV

76. Which of the following does not respond to chromyl chloride test?

1) NH_4Cl 2) KCl 3) $SnCl_4$ 4) NaCl

77. A coloured salt of cobalt is subjected to borax bead test. The transparent borax bead turns blue. From the given reactions, identify the one which does not take place during the process?

1) $4NaBO_2 + CO_2 \rightarrow Na_2B_4O_7 + Na_2CO_3$ 2) $CoO + B_2O_3 \rightarrow Co(BO_2)_2$

3) $Na_2B_4O_7 \rightarrow 2NaBO_2 + B_2O_3$ 4) $Na_2\left[B_4O_5(OH)_4\right].8H_2O \rightarrow Na_2B_4O_7 + 10H_2O$

78. The gaseous envelope around the earth is known as atmosphere. The lowest layer of this is extended upto 10km from sea level, this layer is

1) Stratosphere 2) Troposphere 3) Mesosphere 4) Hydrosphere

79. I. The pair of cations Zn^{2+}, Pb^{2+} can be separated by using on adding NaOH solution

II. A solid mixture of AgCl and $K_2Cr_2O_7$ is heated with concentrated H_2SO_4 and produces deep red coloured vapours

III. Among CuS, As_2S_3, Sb_2S_3 and SnS; CuS is readily soluble in yellow ammonium sulphide

IV. Among HgS, PbS, NiS and CuS; HgS is not soluble in hot and concentrated HNO_3

Then the correct statement is:

1) only I and III 2) only II and IV

3) only IV 4) I,II,III and IV

80. KCN when added sparingly forms first an yellow precipitate with copper(II)sulphate solution. The precipitate quickly decomposes into white precipitate. Excess KCN dissolves the white precipitate, and a colourless complex X is formed. The number of unpaired electrons present on central metal atom/ion in X is:

1) 1 2) 2 3) zero 4) 3

81. DDT is

1) a green house gas 2) a non – biodegradable pollutant
3) a biodegradable pollutant 4) responsible for acid rain

82. Which one of the following combinations will give a blue colouration or blue precipitate?

I. $Cu^{2+} + NH_4OH(aq)$ II. $Fe^{3+} + [Fe(CN)_6]^{4-}$

III. $Cu^{2+} + SCN^-$ IV. $Fe^{3+} + SCN^-$

1) only I and II 2) only II and III 3) only I and II 4) only III and IV

83. NO_3^- in presence of NO_2^- can't be identified by brown ring test. To eliminate NO_2^- from the mixture the compound used is:

1) Sulphamic acid 2) HCl

3) H_2SO_4 4) CH_3COOH

84. Which of the following is not air pollutant?

1) NO_2 2) NO 3) CO 4) N_2

85. Which of the following reacts with dilute HCl to give a gas that turns acidified $K_2Cr_2O_7$ green?

1) Na_2CO_3 2) $NaNO_3$ 3) Na_2S 4) Na_2SO_4

86. An aq solution of a substance gives a white precipitate on treatment with dilute HCl which dissolves on heating. When H_2S gas is passed through the hot acidic solution, black precipitate is obtained. The substance is:

1) Cu^{2+} salt 2) Mn^{2+} salt 3) Ag^{+} salt 4) Pb^{2+} salt

87. A salt made up of bivalent ions X and Y, each of which is capable of decolourising acidified $KMnO_4$. The salt is likely to be:

1) Stannic chloride 2) Ferrous oxalate

3) Ferric sulphate 4) Ferrous sulphate

88. Consider the following statements:

A. When the pH of the rain water drops below 5.6, it is called acid rain

B. Ozone can react with the unburnt hydrocarbons in the polluted air to produce acrolein

C. CFCs are transporting agents for continuously generating chlorine radicals into the stratosphere and damaging the ozone layer

D. F^- ion concentration in water below 1 ppm causes harmful effect to bones and teeth

Of these, the correct statements are:

1) only A and D 2) only B and D

3) only A and B 4) only A,B and C

89. For the given aqueous reaction, which of the statements is incorrect?

$$\text{Excess KI} + K_3\left[Fe(CN)_6\right] \xrightarrow{\text{dilute } H_2SO_4} \underline{\text{Brownish yellow solution}}$$

$$\downarrow ZnSO_4$$

$$\text{White precipitate} + \underline{\text{Brownish yellow solution}\,(\text{filtrate})}$$

$$\downarrow Na_2S_2O_3$$

colourless solution

Incorrect statements is

1) White precipitate is soluble in NaOH solution

2) Addition of filtrate to starch solution gives blue colour

3) White precipitate is $Zn_3\left[Fe(CN)_6\right]_2$

4) The first reaction is a redox reaction

90. Clean water would have BOD value

1) of less than 5 ppm 2) of 17 ppm 3) of 100 ppm 4) 20 ppm