Miscellaneous Exercise Question Bank

1. What are the products formed when an aqueous solution of magnesium bicarbonate is boiled ?

(A) $MgCO_3$, H_2O, CO_2 **(B)** $Mg(HCO_3)_2$, H_2O

(C) $Mg(OH)_2$, H_2O, CO_2 **(D)** No change

2. Which of the following statement is false :

(A) The milk of magnesia used as antacid is chemically $MgO + MgCl_2$

(B) Stability of alkali metal peroxides increases with increase in atomic number

(C) Hydration energy of AgF is higher than its lattice energy

(D) Anhydrous $MgCl_2$ cannot be prepared by direct heating of $MgCl_2 \cdot 6H_2O$

For Paragraph Q. 3 to 4

Alkali metal oxides are obtained by combustion of the metals. Although Na normally gives Na_2O_2, it will take up further oxygen at elevated pressure and temperatures to form NaO_2. The peroxides and superoxides of the heavier alkalies can also be prepared by passing stoichiometric amounts of oxygen into their solution in liquid ammonia. The different alkali metal oxides can be distinguished by reaction with water. The superoxides reacts with CO_2 and give oxygen gas. The stability of peroxides and superoxides is based upon the fact that larger cation can stabilise larger anion due to larger lattice energy.

Alkali metals dissolve in liquid ammonia. Dilute solutions are dark blue in colour but as the concentration increases above 3M, the colour changes to copper bronze and the solution acquires the metallic lustre due to the formation of metal ions clusters. The solution of alkali metals in liquid ammonia are good conductors of electricity due to the presence of ammoniated cations and ammoniated electrons. However, the conductivity decreases as the concentration increases, since ammoniated electrons and ammoniated cation associate.

3. Ammoniated solutions of alkali metals are reducing agents due to the presence of free ammoniated or solvated electrons that can reduce :

(I) O_2 to O_2^{2-} **(II)** $K_2[Ni(CN)_4]$ to $K_4[Ni(CN)_4]$

(III) Aromatic ring **(IV)** Non-terminal alkyne

Choose the correct code :

(A) III and IV **(B)** II and III

(C) I, II, III and IV **(D)** I, III and IV

4. KO_2 is used in oxygen cylinders in space and submarines because it:

(A) Eliminates moisture

(B) Absorbs CO_2 only

(C) Absorbs CO_2 and increases O_2 content

(D) Produces ozone

5. Select the correct choice for alkali metal oxides.

(A) Metal oxides react with water forming only metal hydroxides

(B) Metal peroxides react with water forming metal hydroxides and H_2O_2

(C) Metal superoxides react with water forming metal hydroxide, Hydrogen peroxide and O_2 gas

(D) All of these

For Paragraph Q. 6 to 8

Be and Mg from amongst the p-block elements and most of the d-block elements give metallic or interstitial hydrides on reacting with hydrogen. The density of each compound is less than that of the metal itself and the properties are not much different from that of the metal. They give out hydrogen easily and are strong reducing agents. This suggests that hydrogen is present in the atomic state. These compounds are non-stoichiometric. The f-block elements (i.e., lanthanide and actinides) also form non-stoichiometric hydrides. These hydrides have lower densities than their respective metals. The metals of groups 7, 8 and 9 do not form hydrides. This region of the periodic table is called 'hydride gap'.

6. Which type of hydride is formed by the element having atomic number, Z = 43 ?

(A) metallic hydride **(B)** Saline hydride

(C) Covalent hydride **(D)** No hydride

7. Which of the following has least electrical conductance ?

(A) BeH_2 **(B)** MgH_2 **(C)** CaH_2 **(D)** ZrH_2

8. Interstitial hydride can not be used as,

(A) storing H_2 **(B)** Catalysis for hydrogenation

(C) Rocket propellant **(D)** Electric conductor

9. Intermediate formed by heating microcosmic salt which forms coloured bead with cation is :

(A) NH_3 **(B)** H_3PO_3 **(C)** $NaPO_3$ **(D)** H_2O

***10.** Select correct statement (s) :

(A) stability of peroxides and superoxides of alkali metals increases with increase in size of the metal ion

(B) increase in stability in (A) is due to stabilisation of large anions by larger cations through lattice energy effects.

(C) the low solubility of LiF is due to its high lattice energy whereas low solubility of CsI is due to smaller hydration energy

(D) NaOH does not get form hydrated

***11.** Be and Al resemble each other in which of the following :

(A) both become passive on reaction with HNO_3 due to formation of oxide layer

(B) their chlorides are Lewis acids

(C) chlorides exist in dimeric form

(D) hydroxides are soluble in alkali as well as in acid

12. Be and Al have following resemblance due to diagonal relationship since they :

(A) have nearly equal electronegativity **(B)** form amphoteric oxides

(C) have same charge/radius ratio **(D)** both form dimeric halides

***13.** The pairs of compound which cannot exist together in aqueous solution are :

(A) NaH_2PO_4 and Na_2HPO_4 **(B)** Na_2CO_3 and $NaHCO_3$

(C) NaOH and NaH_2PO_4 **(D)** $NaHCO_3$ and NaOH

14. An alkaline earth metal (M) gives a salt with chlorine, which is soluble in water at room temperature. It also forms an insoluble sulphate whose mixture with a sulphide of a transition metal is called 'lithopone' –a white pigment. Metal M is :

(A) Ca **(B)** Mg **(C)** Ba **(D)** Sr

***15.** Which of the following is used as antacid ?

(A) $Mg(OH)_2$ **(B)** $Al(OH)_3$ **(C)** $NaHCO_3$ **(D)** NaOH

16. EDTA is used in the estimation of :

(A) Mg^{2+} ions **(B)** Ca^{2+} ions

(C) Both Mg^{2+} and Ca^{2+} ions **(D)** Mg^{2+} ions but not Ca^{2+} ions

17. Nitrogen dioxide cannot be prepared by heating :

(A) KNO_3 **(B)** $LiNO_3$ **(C)** $Ba(NO_3)_2$ **(D)** N_2O_5

18. In $LiAlH_4$, metal Al is present in :

(A) anionic part **(B)** cationic part

(C) in both anionic and cationic part **(D)** neither in cationic nor in anionic part

***19.** Which of the following statements are false ?

(A) $BeCl_2$ is a linear molecule in the vapour state but it is polymeric in the solid state.

(B) Calcium hydride is called hydrolith.

(C) Carbides of both Be and Ca react with water to form acetylene.

(D) Oxides of both Be and Ca are amphoteric.

***20.** Which of the following are ionic carbides ?

(A) CaC_2 **(B)** Mg_2C_3 **(C)** SiC **(D)** Be_2C

***21.** Which of the following will give hydrogen peroxide on hydrolysis :

(A) $H_2S_2O_8$ **(B)** H_2SO_5 **(C)** H_3PO_4 **(D)** $HClO_4$

***22.** Select correct statements :

(A) Ortho and para hydrogen are different due to difference in their nuclear spins

(B) Ortho and para hydrogen are different due to difference in their electron spins

(C) Para hydrogen has a lower internal energy than that of ortho hydrogen

(D) Para hydrogen is more stable at lower temperature

***23.** Hydrogen can be obtained from water, by the action of water on :

(A) Calcium carbide **(B)** Calcium hydride

(C) Calcium oxide **(D)** Calcium

24. Following information are known about a metal M :

I. A salt of metal M is used in the manufacture of gunpowder.

II. The superoxide of metal M is used as an air purifier in submarines.

III. The hydroxide of metal M is used for the absorption of gases like CO_2, SO_2, etc in eudiometry. Identify the metal M :

(A) Sodium **(B)** Calcium **(C)** Magnesium **(D)** Potassium

25. Cs^+ ions give violet colour to flame. This is due to the fact that the emitted radiations are of :

(A) high energy **(B)** lower frequencies

(C) longer wave-lengths **(D)** zero wave number

26. The compound(s) of alkaline earth metals which are amphoteric in nature is/are :

(A) BaO **(B)** MgO **(C)** $Be(OH)_2$ **(D)** $Mg(OH)_2$

27. The hydroxide of alkaline earth metal, which has the lowest value of solubility product (K_{sp}) at normal temperature (25°C) is :

(A) $Ca(OH)_2$ **(B)** $Mg(OH)_2$ **(C)** $Sr(OH)_2$ **(D)** $Be(OH)_2$

***28.** The correct statement is/are :

(A) $BeCl_2$ is a covalent compound

(B) $BeCl_2$ is an electron deficient molecule

(C) $BeCl_2$ can form dimer

(D) the hybrid state of Be in $BeCl_2$ in polymeric form is sp^2

29. Which of the following carbonate of alkali metals has the least thermal stability ?

(A) Li_2CO_3 **(B)** K_2CO_3 **(C)** Cs_2CO_3 **(D)** Na_2CO_3

30. The alkali metals which form normal oxide, peroxide as well as super oxides are :

(A) Na, Li **(B)** K, Li **(C)** Li, Cs **(D)** K, Rb

31. $Mg_2C_3 + H_2O \longrightarrow X$ (organic compound). Compound X is :

(A) C_2H_2 **(B)** CH_4 **(C)** propyne **(D)** ethene

32. The hydration energy of Mg^{2+} is :

(A) more than that of Mg^{3+} ion **(B)** more than that of Na^+ ion

(C) more than that of Al^{3+} ion **(D)** more than that of Be^{2+} ion

33. The dipole moment of H_2O_2 is more than that of H_2O but H_2O_2 is not a good solvent because :

(A) It has a very high dielectric constant so that ionic compound cannot be dissolved in it

(B) It does not act as an oxidising agent

(C) It acts as a reducing agent

(D) It dissociates easily and acts as an oxidising agent in chemical reactions

34. The order of solubility of lithium halides in non-polar solvents follows the order :

(A) LiI > LiBr > LiCl > LiF **(B)** LiF > LiI > LiBr > LiCl

(C) LiCl > LiF > LiI > LiBr **(D)** LiBr > LiCl > LiF > LiI

35. $CsBr_3$ contains :

(A) Cs – Br covalent bonds **(B)** Cs^{3+} and Br^- ions

(C) Cs^+ and Br_3^- **(D)** Cs^{3+} and Br_3^{3-} ions

36. The number and type of bonds between two carbon atoms in calcium carbide are :

(A) one sigma, one pi **(B)** one sigma, two pi

(C) two sigma, one pi **(D)** two sigma, two pi

***37.** Highly pure dilute solution of sodium in liquid ammonia :

(A) shows blue colouration due to solvated electrons

(B) shows electrical conductivity due to both solvated electrons as well as solvated sodium ions

(C) shows red colouration due to solvated electrons but a bad conductor of electricity

(D) produces hydrogen gas or carbonate

38. The correct order of solubility is :

(A) $CaCO_3 < KHCO_3 < NaHCO_3$ **(B)** $KHCO_3 < CaCO_3 < NaHCO_3$

(C) $NaHCO_3 < CaCO_3 < KHCO_3$ **(D)** $CaCO_3 < NaHCO_3 < KHCO_3$

39. The complex formation tendency of alkaline earth metals decreases down the group because :

(A) atomic size increases

(B) availability of empty d and f orbitals increases

(C) nuclear charge to volume ratio increases

(D) all the above

***40.** $CuSO_4 \cdot 5H_2O$ contains :

(A) ionic bond **(B)** hydrogen bond

(C) covalent bond **(D)** dative bond

41. $Y \xleftarrow{\Delta,\ 205°C} CaSO_4 \cdot 2H_2O \xrightarrow{\Delta,\ 120°C} X$. X and Y are respectively :

(A) plaster of paris, dead burnt plaster **(B)** dead burnt plaster, plaster of paris

(C) CaO and plaster of paris **(D)** plaster of paris, mixture of gases

42. A metal M readily forms water soluble sulphate, and water insoluble hydroxide $M(OH)_2$. Its oxide MO is amphoteric, hard and have high melting point. The alkaline earth metal M must be :

(A) Mg **(B)** Be **(C)** Ca **(D)** Sr

43. The correct order of basic-strength of oxides of alkaline earth metals is :

(A) BeO > MgO > CaO > SrO **(B)** SrO > CaO > MgO > BeO

(C) BeO > CaO > MgO > SrO **(D)** SrO > MgO > CaO > BeO

44. Which of the following compounds are paramagnetic in nature ?

(A) KO_2 **(B)** K_2O_2 **(C)** Na_2O_2 **(D)** PbO_2

45. If X and Y are the second ionisation potentials of alkali and alkaline earth metals of same period, then :

(A) X > Y **(B)** X < Y **(C)** X = Y **(D)** Cannot be predicted

46. The aqueous solutions of lithium salts are poor conductor of electricity rather than other alkali metals because of :

(A) high ionisation energy **(B)** high electronegativity

(C) lower ability of Li^+ ions to polarize water molecules

(D) higher degree of hydration of Li^+ ions

47. Which of the following substance(s) is/are used in laboratory for drying purposes ?

(A) NaCl **(B)** graphite

(C) anhydrous $CaCl_2$ **(D)** Na_3PO_4

***48.** The $H-O-O$ bond angle and $O-H$ bond lengths are 101.9° and 98.8 pm respectively in solid phase of instead of 94.8° and 95 pm in gaseous phase of H_2O_2. This indicates that the structure of H_2O_2 in solid and gaseous phase are different. This is due to :

(A) Intermolecular hydrogen bonding

(B) Intramolecular hydrogen bonding

(C) Van der Waal's bonding

(D) All are true

49. The incorrect statement(s) is/are :

(A) Mg cannot form complexes

(B) Be can form complexes due to a very small atomic size

(C) the first ionisation potential of Be is higher than that of Mg

(D) Mg forms an alkaline hydroxide while Be forms amphoteric oxides

50. Calcium imide on hydrolysis gives gas (B) which on oxidation by bleaching powder gives gas (C), Gas (C)on reaction with magnesium give compound (D) which on hydrolysis gives again gas (B), Identify (B), (C) and (D).

(A) NH_3, N_2, Mg_3N_2 **(B)** N_2, NH_3, MgNH

(C) N_2, N_2O_5, $Mg(NO_3)_2$ **(D)** NH_3, NO_2, $Mg(NO_2)_2$

51. Which compound will liberate oxygen when reacted with water ?

(A) Na_2O **(B)** Cs_2O_2 **(C)** KO_2 **(D)** Na_2O_2

***52.** Identify the correct statement(s) :

(A) Sodium carbonate on heating evolves carbon dioxide

(B) Sodium nitrate on heating evolves nitrogen dioxide

(C) Sodium hydroxide does not decompose on heating

(D) Sodium bicarbonate on heating evolves carbon dioxide

***53.** $NaHCO_3$ and $KHCO_3$ belong to same category of compounds. Which of the following statements is/are true :

(A) $NaHCO_3$ is less soluble than $KHCO_3$.

(B) $NaHCO_3$ has infinite chain of hydrogen bonding whereas $KHCO_3$ forms dimeric hydrogen bonding in solid state.

(C) Both can exist independently in solid state.

(D) K_2CO_3 can be prepared by Solvay process similar to Na_2CO_3.

***54.** Which of the following statements is/are true ?

(A) All alkali metals are soft and can be cut with knife

(B) Alkali metals do not occur in free state in nature

(C) Alkali metals are highly electropositive

(D) Alkali metal hydrides are covalent and low melting solids.

***55.** Select correct statements :

(A) Beryllium and magnesium hydrides are covalent and polymeric.

(B) CaH_2, SrH_2 and BaH_2 are ionic.

(C) Beryllium hydride contains $3c-2e$ bonds.

(D) Ionic hydrides react with water forming hydrogen.

56. Plaster of Paris hardens by :

(A) giving off CO_2 **(B)** utilising water

(C) changing into $CaCO_3$ **(D)** giving out water

57. Which one of the following products is formed when a mixture of steam, sulphur dioxide gas and oxygen gas (from air) is passed over dry lumps of common salt, the sodium chloride ?

(A) Na_2SO_3 **(B)** $SOCl_2$ **(C)** $NaHSO_3$ **(D)** Na_2SO_4

58. $Na_2\left[Be(OH)_4\right]$ is formed when :

(A) BeO reacts with NaOH solution **(B)** $Be(OH)_2$ reacts with NaOH solution

(C) both (A) and (B) are correct **(D)** none of the above is correct

***59.** Sodium bicarbonate can react with :

(A) Na_2SO_3 **(B)** NaOH **(C)** NaH **(D)** HCl

***60.** A substance (P) releases a gas (Q) on reaction with H_2O. (Q) decolourises Br_2 water. (P) may be :

(A) BeC_2 **(B)** Be_2C **(C)** Al_4C_3 **(D)** Mg_2C_3

61. The products obtained on heating $LiNO_3$ are :

(A) $Li_2O + NO_2 + O_2$ **(B)** $Li_3N + O_2$

(C) $Li_2O + NO + O_2$ **(D)** $LiNO_2 + O_2$

***62.** Which of the following on thermal decomposition yields a basic as well as acidic oxide ?

(A) $NaNO_3$ **(B)** $KClO_3$ **(C)** $CaCO_3$ **(D)** $LiNO_3$

63. Which one of the following orders presents the correct sequence of the increasing basic nature of the given oxides ?

(A) $Al_2O_3 < MgO < Na_2O < K_2O$

(B) $MgO < K_2O < Al_2O_3 < Na_2O$

(C) $Na_2O < K_2O < MgO < Al_2O_3$

(D) $K_2O < Na_2O < Al_2O_3 < MgO$

64. Which of the following has maximum ionisation energy ?

(A) $Ba \rightarrow Ba^{2+} + 2e^-$ **(B)** $Be \rightarrow Be^{2+} + 2e^-$

(C) $Ca \rightarrow Ca^{2+} + 2e^-$ **(D)** $Mg \rightarrow Mg^{2+} + 2e^-$

65. Select the incorrect statement :

(A) Solutions of alkali metals in liquid ammonia are good reducing agents because they contain free or solvated electron.

(B) The crystalline salts of alkaline earth metals contain more water of crystallisation than the corresponding alkali metal salts.

(C) Atoms of alkaline earth metals have smaller size and more nuclear charge than alkali metal atoms of same period.

(D) All alkali metal halides form hydrates.

66. Consider the following statements;

S_1 : Among alkali metal halides lithium iodide is the most covalent in nature.

S_2 : Potassium has greater photoelectric work function than sodium.

S_3 : The blue solution of alkali metals in liquid ammonia is stable at room temperature, where ammonia is still a liquid, in the presence of Fe.

S_4 : The melting and boiling points of alkali metal halides always follow the trend :

chloride > fluoride > bromide > iodide.

and arrange in the order of true/false.

(A) T F F F **(B)** T T F F **(C)** T F T T **(D)** T T T F

67. Which of the following liberates H_2 with cold water ?

(A) H_2O_2 **(B)** NaH **(C)** NaOH **(D)** Mg

68. When ionic nitrides react with water, the products are :

(A) acidic solution and hydrogen gas **(B)** acidic solution and ammonia gas

(C) basic solution and ammonia gas **(D)** basic solution and hydrogen gas

69. Low solubility of CsI in water is due to :

(A) smaller hydration enthalpy of Cs **(B)** smaller hydration enthalpy of I^-

(C) lower lattice enthalpy of its two ions **(D)** (A) and (B) both

70. Baking powder used to make cake is a mixture of starch, $NaHCO_3$ and $Ca(H_2PO_4)_2$. The function of $Ca(H_2PO_4)_2$ is :

(A) to slow down the release of CO_2 gas

(B) it has acidic hydrogen and gives CO_2 when moistened with $NaHCO_3$

(C) to act as a filler

(D) None of these

71. Which of the following gives sodium hydroxide along with hydrogen gas on reaction with water?

(A) Sodium oxide **(B)** Sodium amalgam

(C) Sodium peroxide **(D)** Sodium carbonate

72. A doctor by mistake administers a dilute $Ba(NO_3)_2$ solution to prevent radiographic investigations. Which of the following should be best to prevent the absorption of soluble barium and subsequent barium poisoning.

(A) NaCl **(B)** Na_2SO_4 **(C)** Na_2CO_3 **(D)** NH_4Cl

73. Consider the following statements :

S_1 : Beryllium and Magnesium are inert to oxygen and water.

S_2 : Concentrated solutions of alkaline earth metals in ammonia are bronze coloured.

S_3 : Calcium, strontium and barium reacts with cold water forming hydroxide and librating hydrogen gas

S_4 : Oxides and hydroxides of alkaline earth metals are more ionic and more basic than that of the alkali metals and arrange in the order of true/false.

(A) T T T T **(B)** T T T F **(C)** F T T F **(D)** F T F F

***74.** Select correct statement(s) :

(A) $CaCO_3$ is more soluble in a solution of CO_2 than in H_2O.

(B) Na_2CO_3 is converted to Na_2O and CO_2 on heating.

(C) Li_2CO_3 is thermally unstable.

(D) Presence of $CaCl_2$ or $CaSO_4$ in water causes temporary hardness.

75. Crystals of washing soda lose nine molecules of water when exposed to dry air. This phenomenon is know as :

(A) dehydration **(B)** efflorescence **(C)** deliquescence **(D)** evaporation

76. S_1 : Plaster of paris is hemihydrate of calcium sulphate obtained by heating gypsum above 393 K.

S_2 : Sodium carbonate is used in water softening.

S_3 : The order of mobilities of the alkali metal ions in aqueous solutions is $Li^+ > Na^+ > K^+ > Rb^+ > Cs^+$.

The correct order of true/false is :

(A) T T F **(B)** T T T **(C)** F T F **(D)** F F F

77. Which of the following statements is true for all the alkali metals ?

(A) Their nitrates decompose on heating to give the corresponding nitrites and oxygen

(B) Their chlorides are deliquescent and crystallize as hydrates

(C) They react with water to form hydroxide and hydrogen

(D) They readily react with halogens to form ionic halides, M^+X^-

78. Sodium and potassium react with water much more vigorously than lithium because :

(A) sodium and potassium have high values of hydration energy as compared to that of lithium

(B) sodium and potassium have higher melting point than that of lithium

(C) sodium and potassium have lower melting point than that of lithium

(D) sodium and potassium have lower hydration energy than that of lithium

79. Identify the correct statement :

(A) Gypsum contains a lower percentage of calcium than Plaster of Paris

(B) Gypsum is obtained by heating Plaster of Paris

(C) Plaster of Paris is obtained by hydration of gypsum

(D) Plaster of Paris is obtained by partial oxidation of gypsum

80. Which of the following does not participate in the Solvay's process for the manufacture of Na_2CO_3 ?

(A) NH_3 **(B)** H_2SO_4 **(C)** CO_2 **(D)** NaCl

ASSERTION & REASON

The following questions consist of two statements one labelled ASSERTION (A) and the another labelled REASON (R). Select the correct answers to these questions from the codes given below:

(A) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(B) Both Assertion and Reason are true but Reason is not correct explanation of Assertion

(C) Assertion is true but Reason is false

(D) Assertion is false but Reason is true

81. **Assertion :** Lithium is the weakest reducing agent among the alkali metals.
Reason : In alkali metals, ionization energy decreases down the group.

82. **Assertion :** Cesium is used in photoelectric cells.
Reason : Cesium is the most electropositive element.

83. **Assertion :** Superoxides of alkali metals are paramagentic.
Reason : Superoxides contain the ion O_2^- which has one unpaired electron.

84. **Assertion :** Beryllium does not impart any characteristic colour to the Bunsen flame.
Reason : Due to its very high ionization energy, beryllium requires a large amount of energy for excitation of the electrons.

85. **Assertion :** Diagonal relationship is shown between Be and Al.
Reason : Ionization potential of Be is almost the same as that of Al.

86. **Assertion :** Beryllium halides dissolve in organic solvents.
Reason : Beryllium halides are ionic in character.

87. **Assertion :** $BeCl_2$ fumes in most air.
Reason : $BeCl_2$ reacts with moisture to form HCl gas.

88. **Assertion :** $MgCO_3$ is soluble in water when a current of CO_2 is passed.
Reason : The solubility of $MgCO_3$ is due to the formation of $Mg(HCO_3)_2$.

89. **Assertion :** When CO_2 is passed through lime water, it first turns milky and then the solution becomes clear when the passage of CO_2 is continued.
Reason : The milkiness is due to the formation of insoluble $CaCO_3$ which then changes to soluble $Ca(HCO_3)_2$ when excess of CO_2 is present.

90. **Assertion :** H_2O_2 is not stored in bottles made of glass.
Reason : Alkali oxides present in glass catalyse the decomposition of H_2O_2.

91. **Assertion :** H_2O_2 has bleaching action.
Reason : The bleaching action of H_2O_2 is due to the nascent oxygen, which is liberated on decomposition. $H_2O_2 \longrightarrow H_2O + [O]$

92. **Assertion :** H_2O_2 is a non linear molecule with open book structure.
Reason : In H_2O_2 each oxygen undergoes sp^3 hybridisation, and each oxygen has angular geometry.

93. Dilute solutions of alkali metals in liquid ammonia are good conductors of electricity? What happens when temperature is increased ?

94. 6 milli mole of pure gypsum is heated to convert it completely to Plaster of Paris. What is the number of milli moles of steam evolved in the process ?

95. On heating in excess supply of air, K, Rb and Cs form superoxides rather than oxides and peroxides. Explain.

96. How many of the following form polymeric chains ?

$BeCl_2$, $AlCl_3$, $NaHCO_3$, Li_2CO_3, BeH_2, Na_2CO_3

97. How many of the following heated metals will absorb N_2 gas ?

Li, K, Rb, Cs, Mg, Ca, Sr

98. How many of the following bicarbonates are solid in nature ?

$LiHCO_3$, $NaHCO_3$, $KHCO_3$, $RbHCO_3$, $CsHCO_3$, $Be(HCO_3)_2$, $Mg(HCO_3)_2$, $Ca(HCO_3)_2$, $Sr(HCO_3)_2$, $Ba(HCO_3)_2$

99. Find the number of metal which gives hydrogen gas on reacting with HCl.

Zn, Na, K, Cu, Ag, Au

100. Match Column-I with Column-II and Choose the correct answer from the code given below :

Column-I		Column-II	
1.	$NaNO_3$	**(p)**	Baking soda
2.	$Na_2B_4O_7 \cdot 10H_2O$	**(q)**	Chile salt petre
3.	$NaHCO_3$	**(r)**	Borax
4.	$Na_2CO_3 \cdot 10H_2O$	**(s)**	Washing soda

Codes :

	1	**2**	**3**	**4**		**1**	**2**	**3**	**4**
(A)	p	q	r	s	**(B)**	q	r	p	s
(C)	r	p	q	s	**(D)**	s	p	q	r