CHEMISTRY

BOOKS - MAXIMUM PUBLICATION

THE s-BLOCK ELEMENTS

Exercise

1. The element placed at the bottom of the alkali metal family is expected to

A. Have maximum ionisation enthalpy

B. Be the least reducing agent

C. Be the least electropositive element

D. Be the most easily ionisable

Answer: D

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2. Which of the following have lowest thermal stability?

A. Li_2CO_2

B. Na_2CO_3

C. K_2CO_3

D. Rb_2CO_3

Answer: A

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3. The chemical formula of Plaster of Paris is

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4. A mixture of NaOH and CaO is known as _____.

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5. Which of the following is least soluble in water?

A. $BeSO_4$

B. $BaSO_4$

C. $CaSO_4$

D. $SrSO_4$

Answer: B

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6. Pick out the odd one and write reason for it.

$Ca(OH)_2, Mg(OH)_2, Ba(OH)_2, Be(OH)_2$

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7. Mg_2C_3 on hydrolysis gives _____.

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8. The raw materials required for the manufacture of cement clinker are

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9. A sodium potassium alloy is used as a _____.

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10. Li_2CO_3 decomposes at a lower temperature whereas Na_2CO_3 at higher temperature.why?

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11. Choose the false statements and rewrite them. (a)Alkali metals possess both +1 & +2 oxidation states. (b) Lithium is found to be the strongest reducing agents among the alkali metals.(c) Manufacturing of rayon is known as viscose process. (d) Washing soda is used to remove temporary hardness of water.

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12. Write the scientific name of slaked lime.

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13. What do you mean by slaking of lime?

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14. What happens when slaked lime is treated with dry chlorine?

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15. Which metal is present in chlorophyll?

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16. A compound is used as drying agent as such or as soda lime with NaOH and it is used on a very large scale as a building material. How can we prepare this compound?

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17. A compound is used as drying agent as such or as soda lime with NaOH and it is used on a very large

scale as a building material. What are the properties of this compound?

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18. Listen the chemical reaction, $2(CaSO_4.2H_2O) \xrightarrow{A} B + 3H_2O$. Write the common name of the reactant.

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19. Listen the chemical reaction, $2(CaSO_4.2H_2O) \xrightarrow{A} B + 3H_2O$. What is the temperature corresponding to A?

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20. Listen the chemical reaction, $2(CaSO_4.2H_2O) \xrightarrow{A} B + 3H_2O$. What is B (product)? Write its chemical formula.

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21. Explain with the help of chemical equations what happens when- lime stone is heated?

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22. Explain with the help of chemical equations what happens when. water is dropped on quick lime?

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23. Explain with the help of chemical equations what happens when-- gypsum is heated to 393 K?

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24. Alkali metal halides are all high melting, colourless crystalline solids.Write any other physical property of alkalimetal halides.

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25. Alkali metal halides are all high melting, colourless crystalline solids. How alkali metal halides are prepared?

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26. What is Plaster of Paris? How is it prepared? What is its use?

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27. Give the biological importance of Na and K.

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28. Name the element showing anomalous behaviour in group 2.

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29. Give reason for anomalous behaviour in group 2.

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30. List any two similarities between Be and Al.

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31. A compound of calcium is used for immobilising the fractured bones of body. Write down the common name and molecular formula of the compound.

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32. A compound of calcium is used for immobilising the fractured bones of body. Which property of the compound helps to make plaster?

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33. A compound of calcium is used for immobilising the fractured bones of body. What do you mean by dead burnt plaster? How does it form?

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34. Lithium is group 1 element. It shows some similarities with group 2 element magnesium. Write the name of the relationship.

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35. Lithium is group 1 element. It shows some similarities with group 2 element magnesium. Explain this relationship.

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36. Lithium is group 1 element. It shows some similarities with group 2 element magnesium. What is the reason for this relationship?

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37. Lithium is group 1 element. It shows some similarities with group 2 element magnesium. Give other example for this relationship.

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38. Mention a few important uses of the following compounds. a) Epsom salt b) Marble c) Sodium hydroxide

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39. Cement is a complex mixture of silicates and aluminates. What is the function of gypsum in cement?

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40. Cement is a complex mixture of silicates and aluminates. Explain setting of cement.

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41. The alkali metals and their salts impart characteristic colour to an oxidising flame.What is the

reason for this?

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42. The alkali metals and their salts impart characteristic colour to an oxidising flame.Give the flame colour of Na and K.

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43. The alkali metals and their salts impart characteristic colour to an oxidising flame.Name the alkali metal which imparts crimson red colour to the oxidizing flame.

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44. How will you prepare $Ca(OH)_2$ and $CaCO_3$ from quick lime.

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45. Give any two uses of quick lime.

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46. Lithium shows similarities in properties with Magnesium.Name the above phenomenon.

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47. Lithium shows similarities in properties with Magnesium. Give any two similarities of Lithium Magnesium

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48. How is bleaching powder prepared?

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49. What is the name of the method that is used in manufacturing of sodium hydroxide? Explain the method.Write the equations of the reactions involved in this process

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50. A piece of metallic sodium is added to liquid ammonia.What is the observation?

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51. A piece of metallic sodium is added to liquid ammonia.blue colour is observed.What is the reason for this?

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52. A piece of metallic sodium is added to liquid ammonia.What happens when the solution is kept for some time?

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53. On passing CO_2 through lime water, milkiness appears. On further passing CO_2, milkiness disappears. What is the Chemistry behind it?

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54. Cement is an important building material employed in different kinds of construction works.What are the major raw materials for making cement?

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55. Cement is an important building material employed in different kinds of construction works.How is cement prepared?

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56. Cement is an important building material employed in different kinds of construction works.What are the important ingredients of Portland cement?

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57. Cement is an important building material employed in different kinds of construction works.Explain the Chemistry involved in the setting of cement.

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58. Study the list of elements given below: Na, Mg, Li, B, C Select the pairs showing diagonal relationship.

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59. Write the chemical equation showing the reaction of sodium metal with water.

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60. Arrange the following compounds in the increasing order of solubility in water:(i) $OMg(OH)_2, Be(OH)_2, Ba(OH)_2, Ca(OH)_2, Sr(OH)_2$ (ii) $SrSO_4, MgSO_4, BeSO_4, BaSO_4o, CaSO_4$.

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61. Write the difference between lime water and milk of lime. Complete the following reaction - $CaCO_3 \xrightarrow{\Delta} - - - + - - - -$

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62. Explain why alkali and alkaline earth metals cannot be obtained by chemical reduction methods?

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63. Why are potassium and caesium, rather than lithium used in photoelectric cells?

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64. When an alkali metal dissolves in liquid ammonia the solution can acquire different colours. Explain the reasons for this type of colour change

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65. Beryllium and magnesium do not give colour to flame whereas other alkaline earth metals do so, why?

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66. Potassium carbonate cannot be prepared by Solvay process. Why?

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67. Why Li_2CO_3 decomposes at lower temperature whereas Na_2CO_3 at higher temperature?

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68. How would you explain? BeO is insoluble but $BeSO_4$ is soluble in water.

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69. How would you explain?BaO is soluble but $BaSO_4$ is insoluble in water.

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70. How would you explain? LiI is more soluble than KI in ethanol.

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71. Which of the alkali metals is having least melting point?

A. Na

B. K

C. Rb

D. Cs

Answer: D

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72. Cs alkali metal is having least melting point. Justify.

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73. How will you prepare $Ca(OH)_2$ and $CaCO_3$ from quick lime (CaO)?

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74. Complete the following reactions: (i) $CaCO_3 \xrightarrow{1200K} ?$ (ii)$CaCO_3 + H_2SO_4 \rightarrow ?$

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75. The group 1 metals of the periodic table of elements are collectively called alkali metals.Write the general electronic configuration of alkali metals

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76. The group 1 metals of the periodic table of elements are collectively called alkali metals. Identify the alkali metal exhibiting anomalous properties. Explain.

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77. The group 1 metals of the periodic table of elements are collectively called alkali metals. Alkali metals are normally kept in kerosene. Why?

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78. The group 1 metals of the periodic table of elements are collectively called alkali metals. Alkali metals are never found free in nature. Give reason.

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79. State whether the following sentences are true or false: (a) Metals in the second group are called alkali metals. (b) Alkali metals are not found in free state in nature. (c) Baking soda is chemically sodium hydrogen carbonate. (d) Portland cement is basically silicates and alu minates of calcium.

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80. Fill in the blanks: (a) Molecular formula of Plaster of Paris _____. (b) Beryllium shows diagonal relationship with _____. (c) The metal present in chlorophyll is ____.(d) Solvay process is associated with the preparation of _____.

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81. Monovalent Na^+, K^+ ions and divalent Ca^{2+}, Mg^{2+} ions are found in large proportions in biological fluids. In which part of our body are sodium and potassium ions prominently located?

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82. Monovalent Na^+, K^+ ions and divalent Ca^{2+}, Mg^{2+} ions are found in large proportions in biological fluids. What are the major roles of these Na and K ions in our body ?

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83. Monovalent Na^+, K^+ ions and divalent Ca^{2+}, Mg^{2+} ions are found in large proportions in biological fluids. For making which parts of our body, calcium is mainly used?

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84. Monovalent Na^+, K^+ ions and divalent Ca^{2+}, Mg^{2+} ions are found in large proportions in biological fluids. Give the name of the metal present in Chloro phyll.

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85. Beryllium shows a diagonal relationship with aluminium. Mention any two similarities between beryllium and aluminium

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86. Match the following:

A	B
Sodium carbonate	Chain structure in the solid state
Beryllium chloride	Mild antiseptic
Sodium hydroxide	Solvay process
Sodium hydrogen carbonate	Castner-Kellner cell

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87. Lithium and Magnesium belong to 1st and 2nd groups in the periodic table. They resemble each other in many respects.(i) Name such relationship.(ii) Give any one similarity between Li and Mg.

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88. compound of calcium is used in hospitals for setting fracture of bones.(i) Write the name and formula of the above compound. (ii) What is dead burnt plaster?

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89. Alkali metals and alkaline earth metals belong to the s-block of the periodic table. Name the process used for the industrial preparation of sodium carbonate.

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90. Alkali metals and alkaline earth metals belong to the s-block of the periodic table. Name the industrial process for the manufacture of sodium carbonate .The above mentioned method is not suitable for the preparation of potassium carbonate. Give the reason

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91. Alkali metals and alkaline earth metals belong to the s-block of the periodic table. Draw the chain structure of beryllium chloride in solid state.

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92. Alkali metals and alkaline earth metals belong to the s-block of the periodic table. Write the chemical equation showing the preparation of Plaster of Paris from gypsum.

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93. A mixture of NaOH and CaO is known as _____.

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94. When CO_2 is passed through lime water it turns milky. On passing excess of CO_2, the milky colour

disappears. Give the chemical reactions involved in the processes.

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95. Give reasons. (i)Solutions of alkali metals in liquid ammonia are blue in colour.

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96. Match the following:

A	B
Quick lime	$Ca(OCl)_2$
Plaster of Paris	CaO
Bleaching powder	$Ca(OH)_2$
Slaked lime	$CaSO_4.\frac{1}{2}H_2O$
	$CaCl_2$
	$CaCO_3$

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97. The reactivity of alkali metals towards air is different for different metals. How do alkali met- als react with air?

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98. The metal present in the chlorophyll of plants is _____.

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99. Give any two uses of caustic soda

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100. When sodium metal dissolves in liquid ammonia, it gives a deep blue coloured solution. Explain the reason.

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101. Alkali metals are highly reactive due to their low ionization enthalpies. The alkali metal which acts as the strongest reducing agent in aqueous solution is _____.

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102. Alkali metals are highly reactive due to their low ionization enthalpies. How is sodium carbonate prepared using Solvay process? Is this method suitable for the preparation of potassium carbonate? Justify

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103. Alkali metals dissolve in liquid ammonia to give blue coloured solutions. Why?

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104. Plaster of Paris is an important compound of Calcium. (i) Give the chemical formula of plaster of Paris.

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105. Cement is an important building material. Explain the manufacture of cement.

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106. The s-block of periodic table constitutes alkali metals and alkaline earth metals. The hydroxides and carbonates of sodium and potassium are more soluble than that of corresponding salts of Magnesium and Calcium.Explain.

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107. The s-block of periodic table constitutes alkali metals and alkaline earth metals. Write the chemical name of the following: (i) Caustic soda (ii) Baking soda (iii) Slaked lime (iv) Milk of lime

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