CHEMISTRY

BOOKS - MARVEL CHEMISTRY (HINGLISH)

S BLOCK ELEMENTS

Mcqs

1. Which of the following statement is NOT true about 's' block elements ?

A. s' block contains alkalin metals

B. s' block elements forms oxyacids

C. s-block elements forms basic-oxides

D. Lets electron enters in s-orbital of an element

Answer: B

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2. What is the nature of plant ash?

A. Acidic

B. neutral

C. Amphoteric

D. Alkaline

Answer: D

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3. The first three elements of Group 1 have the following atomic structures

(a) Lithium : $3p$, $4n$, 2, 1 electrons

(b) Sodium: $11p$, $12n$, 2, 8, 1 electrons

(c) Potassium: $19p$, $20n$, 2, 8, 8, 1 electrons

which of the following features causes them to have similar properties?

A. the same number of protons

B. more protons than electrons

C. two electrons in the first shell

D. one electron in the outermost shell

Answer: D

4. The element with atomic number 19 is similar in physical and chemical properties to the element with atomic number

A. 6

B. 9

C. 10

D. 11

Answer: D

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5. Which of the following are isoelectronic with one another ?

A. Na^+, Ne

B. K^+, O

C. He, O

D. Na^+, K^+

Answer: A

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6. In which one of the followig sets are there three members of the alkaline earth family of metals ?

A. Aluminium, sodium, potassium

B. Lithium, sodium, potassium

C. Magnesium, barium, calcium

D. Rubidium, caesium, francium

Answer: C

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7. Select from each of the following sets those elements which belong to the same group of the periodic table ?

A. At. Nos. $12, 4, 88$

B. At. Nos. $9, 16, 35, 3$

C. At nos. $11, 19, 27, 5$

D. At.nos, $24, 47, 42, 55$

Answer: A

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8. Electronic configuration calcium atom can be written as

A. $[Ne]4p^2$

B. $[Ar]4s^2$

C. $[Ne]4s^2$

D. $[Ar]4p^2$

Answer: B

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9. The valence shell electronic configuration of alkali metals is

A. ns^1

B. na^2

C. ns^2np^1

D. ns^2np^2

Answer: A

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10. s-block elements are placed in

A. 1st and 2nd group of periodic tabgle

B. 1st group of periodic table

C. 18th group of periodic table

D. 3rd group of periodic table

Answer: A

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11. The number of electrons in the outeromost orbitla of alkaline earth metals are

A. 2

B. 1

C. 4

D. 5

Answer: A

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12. Electronic congiguration of caseium is

A. $[At]4s^1$

B. $[Kr]5s^1$

C. $[Xe]6s^1$

D. $[Rn]7s^1$

Answer: C

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13. The least abundant alkaline earth metal is :

A. Barium

B. Radium

C. Strontium

D. Beryllium

Answer: B

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14. Which is not an ore of Ca ?

A. lime stone

B. Fluorspar

C. Dolomite

D. Epsom salt

Answer: D

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15. Among the alkaline earth elements, element ranking 5th in abundance in the earth crust is

A. Mg

B. Ca

C. Be

D. Ba

Answer: B

16. Among the alkaline earth elements, element ranking 6th inabundance in the earth crust is

A. Mg

B. Ca

C. Sr

D. Be

Answer: A

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17. Leat abundant occuring element among alkali metals is

A. Li

B. Rb

C. Cs

D. Fr

Answer: D

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18. Radioactive elements in the s-block are

A. Li, Be

B. Cs, Ba

C. Fr, Ra

D. Li, Mg

Answer: C

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19. In the lithosphere, rarest occuring alkaline earth metal is

A. Be

B. Ra

C. Sr

D. Ba

Answer: B

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20. The most widely distrubuted alkali metals as chloride in nature is/are

A. Li

B. Na, K

C. Cs

D. Rb

Answer: B

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21. Fr has half life period of

A. 21 seconds

B. 21 minutes

C. 21 hours

D. 21 kgs

Answer: B

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22. Why the lithium show anomalous property ?

A. Lithium has the smallest size

B. Lithium has low polarizing power

C. Lithium has high radius to charge ratio

D. Lithium has low charge to radius ratio

Answer: A

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23. Which of the following element have highest covalent character ?

A. Na

B. K

C. Li

D. H

Answer: C

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24. The lightest metal known is

A. Beryllium

B. Lithium

C. Sodium

D. Marcury

Answer: B

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25. Which one of the following halides crystallizes from its aquesous solution as hydrate?

A. LiCl

B. KCl

C. NaCl

D. RbCl

Answer: A

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26. Point out the correct statement about lithium ?

A. It is softer than other alkali metals

B. It is least reactive among alkali metals

C. It possesses lower melting and boiling points

D. It forms chloride which is insoluble in pyridine

Answer: B

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27. Which of the following does not illustrate the anomalous properties of lithium?

A. The m.p. and b.p. of Li are comparatively high

B. Li forms a nitride Li_3N unlike group 1 metals

C. Li is much softer than the other I group metals

D. Li^+ ion and its compounds are more heavily hydrated than those of the rest of the group

Answer: C

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28. Which of the following alkali metals form complex hydrides?

A. Li

B. K

C. Cs

D. Rb

Answer: A

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29. Lithium is strongest reducing agent among alkali metals due to which of the following factor ?

A. Ionisation energy

B. Electron afficity

C. Hydration energy

D. Lattice energy

Answer: C

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30. Which of the following statement is NOT true about lithium and magnesium ?

A. Both of these are softer than other element in respective group

B. Chlorides of both can dissolve in ethanol

C. Clorides of both are deliquescent solids

D. Both of them combine with nitrogen to form nitride

Answer: A

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31. Select the sequence of the metals, forming oxide, peroxide and super oxide.

A. Li, Rb, Na

B. Rb, Na, Li

C. Li, Na, Rb

D. K, Rb, Li

Answer: C

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32. Which of the following sets can be called isoelectronic species ?

A. Na^+, Mg^+

B. Na, Mg^+

C. Na, Mg

D. Na, Mg^{2+}

Answer: B

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33. Diagonal relationship is shown by the elements

A. Be and Mg

B. Li and Na

C. Li and Mg

D. Be and Ba

Answer: C

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34. Digonal relationship is shown by the elements

A. Be and Mg

B. Li and Mg

C. Li and Na

D. Be and Ba

Answer: B

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35. Why do alkali metals have lowest ionisation energy ?

A. Because of small atomic size

B. Because of high nuclear charge

C. Because of large atomic size

D. Because of large atomic number

Answer: C

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36. Which of the following is powerful reducing agent that used widely in organic chemistry ?

A. $KalH_4$

B. $LiAlH_4$

C. C_5H_{10}

D. $NaAlH_4$

Answer: B

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37. Which of the following properties is not true for an alkali metal ?

A. Low atomic volume

B. Low ionization enthalpy

C. Low density

D. Low electronegativity

Answer: A

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38. The correct arrangement of increasing order of atomic radius among Na, K, Mg, Rb is

A. $Na < K < Mg < Rb$

B. $K < Na < Mg < Rb$

C. $Na < Mg < K < Rb$

D. $Rb < K < Mg < Na$

Answer: A

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39. Which of the following has lowest melting point ?

A. Li

B. Na

C. K

D. Cs

Answer: D

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40. In the case of alkali metals, the covalent character decreases in the order.

A. MI gt MBr gt MCl gt MF`

B. $MClgrMI > MBr > MF$

C. $MFgrMCl > MBr > MI$

D. $MF > MCl > MI > MBr$

Answer: A

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41. The set representing the correct order of ionic radius is : a) $Na^+ > Mg^{2+} > Al^{3+} > Be^{2+} > Li^+$ b) $Na^+ > Li^+ > Mg^{2+} > Al^{3+} > Be^{2+}$ c) $Na^+ > Mg^{2+} > Al^{3+} > Li^+ > Be^{2+}$ d) $Na^+ > Mg^{2+} > Li^+ > Be^{2+} > Al^{3+}$

A. $Na^+ > Li^+ > Mg^{2+} > Be^{2+}$

B. $Ni^+ > Na^+ > Mg^{2+} > Be^{2+}$

C. $Mg^{2+} > Be^{2+} > Li^+ Na^+$

D. $Li^+ > Be^{2+} > Na^+ > Mg^{2+}$

Answer: A

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42. The alkali metal having low melting point is

A. Na

B. K

C. Rb

D. Cs

Answer: D

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43. The species having largest size is

A. Na

B. Na^+

C. K

D. K^+

Answer: C

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44. The alkali metal which can emit its outermost electron under the influence of even candle light is

A. Li

B. Rb

C. K

D. Cs

Answer: D

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45. Which of the following when introduced into the Bunsen's flame gives pink violet colour ?

A. $NaCl$

B. $BaCl_2$

C. $CsCl$

D. KCl

Answer: D

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46. The reaction of water with Na and K is

A. Reversible

B. `Irreverisible and endothermic

C. Exothermic

D. Endothermic

Answer: C

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47. Alkali metals present in their compounds are always

A. Zerovalent

B. Monovalent

C. Bivalent

D. Mono and Bivalent

Answer: B

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48. The correct sequence of increasing covalent character is represented by

A. $BeCl_2 < NaCl < LiCl$

B. $NaCl < LiCl < BeCl_2$

C. $BeCl_2 < LiCl < NaCl$

D. $LiCl < NaCl < BeCl_2$

Answer: B

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49. The electronic configuration of metal M is $1s^2 2s^2 2p^6 3s^1$. The formula of its oxide will be :

A. MO

B. M_2O

C. M_2O_3

D. MO_2

Answer: B

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50. On heating sodium metal in a current of dry ammonia, the compound formed is

A. Sodium amide

B. Sodium azide

C. Sodium nitride

D. Sodium hydride

Answer: A

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51. A solution of sodium metal in liquid ammonia is strongly reducing due to the presence of

A. Sodium hydride

B. Sodium amide

C. Sodium atoms

D. Solvated electrons

Answer: D

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52. Which of the following metal is most reactive ?

A. Na

B. K

C. Mg

D. Pb

Answer: B

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53. Fill in the following blanks:

(a) Common salt is obtained from sea-water by the process of____

(b) Rock salt is mined just like____

(c) Chemical formula of washing soda is_____

(d) Sodium hydrogencarbonate is_____ soda whereas sodium carbonate is _____soda.

(e). The chemical formula of plaster of Paris is_____

A. NaOH

B. $NaHCO_3$

C. Na_2CO_3

D. $Na_2CO_3.10H_2O$

Answer: D

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54. The hydrolysis of sodium carbonate involves

A. weak acid and weak base

B. weak acid and strong base

C. weak base and strong base

D. string acid and strong base

Answer: B

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55. the product(s) of the reaction,

$Na_2CO_3 + CO_2 + H_2O \rightarrow$ is/are

A. $2naOH + CO_2$

B. $Na_2CO_3 + H_2CO_3$

C. $2NaHCO_3$

D. None of these

Answer: C

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56. The solid $NaCI$ is a bad conductoe of electricty since

A. solid NaCl there are no ions

B. in solid NaCl these are no ions

C. in solid NaCl there are no electrons

D. in solid NaCl, the Na^+ and Cl^- ions strongly attracted by one another and hence there is no net velocity of ions

Answer: D

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57. Washing soda has formula

A. $Na_2CO_3.7H_2O$

B. $Na_2CO_3.10H_2O$

C. $Na_2CO_3.H_2O$

D. Na_2CO_3

Answer: B

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58. A fire extinguisher contains H_2SO_4 and

A. $NaHCO_3$ and na_2CO_3

B. $NaHCO_3$ solution

C. Na_2CO_3

D. $CaCO_3$

Answer: A

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59. NaCl crystals consist of

A. NaCl molecules

B. Na and Cl atoms

C. Na^+ and Cl^- ions

D. Na^- and Cl^+ ions

Answer: C

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60. In the preparation of sodium carbonate (Na_2CO_3) which of the following is used as raw material?

A. Slaked lime

B. Quick lime

C. Lime stone

D. Sodium hydroxide

Answer: C

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61. When washing soda is heated

A. CO is released

B. $CO + CO_2$ is released

C. CO_2 is released

D. Water vapour is released

Answer: D

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62. NaOH is

A. Hygroscopic

B. Efflorescent

C. Deliquescent

D. Photosensitive

Answer: C

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63. Which of the following statement sis inocrrect ?

A. Sodium is the most abundant metla in earth's crust q

B. Sodium is the most abundant metallic element in sea water

C. Melting and boiling points of alkali metals decrease down the group

D. Ionic character of alkali metal halides decreases down the group

Answer: D

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64. Alkali metals are generally extracted by

A. Reduction methods

B. Doutble decomposition methods

C. Displacement methods

D. Electrolytic methods

Answer: D

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65. When CO is passed over solid NaOH heated to $200^{\circ}C$, it forms

A. Na_2CO_3

B. H_2CO_3

C. $HCOONa$

D. All

Answer: C

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66. Which of the following metal is used in devising photo electric cells ?

A. Mg

B. Ca

C. Na

D. Cs

Answer: D

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67. To remove exhaled CO_2 by astronauts in spaceship, the chemical used is

A. $LiOH$

B. $NaOH$

C. $Mg(OH)_2$

D. $Ca(OH)_2$

Answer: A

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68. Which of the following hydroxide is used to prepare soft soaps ?

A. Li

B. K

C. Na

D. Ca

Answer: B

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69. Causticisation process is used for the preparation of

A. Caustic soda

B. Caustic potash

C. Washing soda

D. Slaked lime

Answer: A

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70. Which of the following is known as fusion mixture ?

A. Mixture of $Na_2CO_3 + KHCO_3$

B. $Na_2CO_3 . 10H_2O$

C. Mixture of $K_2CO_3 + Na_2CO_3$

D. $NaHCO_3 + K_2CO_3$

Answer: C

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71. Excess of intake of sodium causes

A. Hypertension

B. Lung infection

C. Reduction osteoid tissue

D. Atrophy of muscles

Answer: A

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72. Daily requirement of KCl is approximately

A. 1 g

B. 10 g

C. 4 g

D. 8 g

Answer: C

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73. What is true about human blood cell ?

A. There is high concentration of K^+ ion inside the cell

B. There is low concentration of K^+ ion inside the cell

C. There is high concentration of Na^+ ion inside the cell

D. There is same concentration of Na^+ and K^+ ion inside the cell

Answer: A

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74. Excess of Na^+ ions in our system causes

A. Diabetes

B. Anaemia

C. Low blood pressure

D. High bloos pressure

Answer: D

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75. Which of the following compound is used in gun powder ?

A. $NaNO_3$

B. KNO_3

C. $LiNO_3$

D. $Mg(NO)_2$

Answer: B

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76. The elements of group-2 are called alkaline earth metals because

A. Mg

B. Be

C. Ra

D. Ca

Answer: B

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77. The elements of group-2 are called alkaline earth metals because

A. they are alkaline in nature

B. they occur in earth's crust and form alkaline salys

C. Their oxides are alkaline and occur in earth's crust

D. these are s-block elements

Answer: C

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78. Which of the following represents the electronic configuration of the most electropositive element ?

A. $[He]2s^2$

B. $[Ne]3s^2$

C. $[Asr]4s^2$

D. $[Kr]5s^2$

Answer: D

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79. Which of the following has the largest ionic radius ?

A. Be^{2+}

B. Mg^{2+}

C. Ca^{2+}

D. Sr^{2+}

Answer: D

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80. BeF_2 is soluble in water whereas the fluorides of other alkaline earth metals are insoluble because of

A. BeF_2 is ionic in nature

B. BeF_2 is covalent in nature

C. Hydration energy of BeF_2 is much higher than its lattice energy

D. Lattice energy of BeF_2 is much higer than that of its hydration energy

Answer: C

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81. Amongst $LiCl, RbCl, BeCl_2$ and $MgCl_2$, the compounds whith the greatrest and the least ionic character respecitely are :

A. Licl and RbCl

B. $RbCl$ and $BeCl_2$

C. $RbCl$ and $MgCl_2$

D. $MgCl_2$ and $BeCl_2$

Answer: B

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82. Property of the alkaline earth metals that increases with their atomic number is

A. Ionisation enthalpy

B. Solubility of their hydroxides

C. Solubility of their sulphates

D. Electronegativity

Answer: B

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83. Which of the following has the highest first ionisation enthalpy ?

A. Ba

B. Be

C. Mg

D. Ca

Answer: B

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84. The most electronegative alkaline earth metal is

A. Be

B. Mg

C. Ra

D. Ca

Answer: A

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85. Which of the following has the largest ionic radius ?

A. Me^{2+}

B. Ba^{2+}

C. Sr^{2+}

D. Mg^{2+}

Answer: B

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86. What are products formed, when powdered beryllium burns on ignition in air ?

A. BeO only

B. Be_3N_2 only

C. BeO and Be_3N_2

D. Become red hot and starts glowing

Answer: C

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87. What is hydrolith? How is it prepared?

A. BeH_2

B. MgH_2

C. CaH_2

D. SrH_2

Answer: C

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88. Calcium metal is used to produce high vaccum because it

A. can remove water

B. can remove both O_2 and N_2

C. is a good reductant

D. is highly electropositive

Answer: B

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89. Barium burns in air to from

A. BaO

B. BaO_2

C. Ba_2O_2

D. $Ba(OH)_2$

Answer: A

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90. Which of the following has correct increasing basic strength ?

A. $MgO < BeO < CaO < BaO$

B. $BeO < MgO < CaO < BaO$

C. $BaO < CaO < MgO < BeO$

D. $CaO < BaO < BeO < MgO$

Answer: B

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91. The number of covalent bonds formed by beryllium is

A. 2

B. 3

C. 4

D. 5

Answer: A

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92. As the alkaline earth metals (except Be) tend to lose their valence electrons readily they act as

A. weak oxidising agents

B. weak reducing agents

C. strong oxidising agents

D. strong reducing agents

Answer: D

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93. What is the nature of BeO and $Be(OH)_2$?

A. Acidic

B. netural

C. Basic

D. Amphoteric

Answer: D

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94. A certain metal is present in the soil, plants, bones, egg shelts, sea shells and coral. It is also used

to remove oxygen from molten steel and its hydroxide is used to detect Co_2. The metal is

A. Al

B. Mg

C. Ca

D. Na

Answer: C

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95. A certain metal M is used to prepare an antiacid,which is used as a medicine in acidity. This

metal accidently catches fire and it was found that the fire cannot be put out by using Co_2 based extinguishers. The metal M is

A. C

B. Ca

C. Mg

D. Na

Answer: C

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96. What is an electron ? State its relative mass and charge.

A. A particle in an atom

B. An alloy

C. A metal

D. A non-metal

Answer: B

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97. BeO is least soluble in

A. Pure water

B. Dilute HCl

C. Dilute NaOH solution

D. Aqueous solution of $BeCl_2$

Answer: A

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98. Beryllium and aluminium have similar properties because

A. they belong to same group

B. they have same charge

C. they have similar electronic configuration

D. They have same polarizing power

Answer: D

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99. Which of the following is not common property of Be and Al ?

A. Their oxides are amphoteric

B. Their chlorides are Lawis acids

C. Both belongs to same group

D. They have strong tendency to from covalent bond

Answer: C

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100. Halides of alkaline earth metals form hydrates such as $MgCl_2.6H_2O$, $CaCl_2.6H_2O$, $BaCl_2.2H_2O$ and $SrCl_2.2H_2O$. This shows that halides of group 2 elements :

A. are hygroscopic in nature

B. act as dehydrating agents

C. can absorb moisture from air

D. all of the above

Answer: D

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101. Suspension of slaked lime in water is called _____.

A. Quick lime

B. Water of lime

C. Lime water

D. Milk of lime

Answer: D

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102. Calcium oxide is called

A. Quick lime

B. Milk of lime

C. Limestone

D. Slaked lime

Answer: A

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103. Drying agent which reacts with CO_2 and involves water vapour is

A. CaO

B. $CaCl_2$

C. $CaCO_3$

D. $Ca(NO_3)_2$

Answer: A

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104. The reaction of slaked lime with Cl_2 gas gives

A. only $Ca(Ocl)_2$

B. Only $CaCl_2$

C. A mixture of

$Ca(Ocl)_2, Ca(OH)_2, CaCl_2$ and H_2O

D. Quick lime

Answer: C

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105. What is slaking of lime ?

A. $CaO + CO_2 \rightarrow CaCO_3$

B. $CaO + H_2O \rightarrow Ca(OH)_2$

C. $CaO + SiO_2 \rightarrow CaSiO_3$

D. $6CaO + P_4O_{10} \rightarrow 2Ca_3(PO_4)_2$

Answer: B

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106. Which of the following is water soluble compound of calcium ?

A. $Ca(HCO_3)_2$

B. $CaSiO_3$

C. $CaCO_3$

D. $Ca(OH)_2$

Answer: A

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107. Which of the following is not the use to calcium ?

A. Used in chewing gum

B. Used to manufacture cement

C. Used in manufacture high quality paper

D. Used to preserve meat and fish

Answer: D

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108. The metal present in chlorophyll is _____

A. Mg

B. Mg^{+}

C. Mg^{2+}

D. None

Answer: C

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109. Which of the following alkaline earth metal is cofactor of enzyme to utilise ATP in phosphate transfer ?

A. Ca

B. Mg

C. Sr

D. Ra

Answer: B

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110. Which of the following biological activity is not related with calcium ?

A. Interneuronal transmission

B. Cell membrane intergity

C. Photosynthesis by chlorophyll

D. Muscular functioning

Answer: C

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111. Which of the following metal mainly used to obtain light energy ?

A. Li

B. Na

C. Cs

D. Fr

Answer: B

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112. Which of the followig alaline earth metal do not contain 'd' orbital ?

A. Ra

B. Ba

C. Sr

D. Ca

Answer: D

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113. Diagonal relationship is shown by

A. Be and Ba

B. Li and Mg

C. Li and Na

D. Be and Mg

Answer: B

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114. Cs^+ ions impart violet colour to Bunsen flame. This is due to the fact that the emitted radiations

are of

A. High energy

B. Low energy

C. Longer wavelength

D. None of these

Answer: A

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115. A binary compound formed between the elements with atomic numbers 19 and 17 is expected to be

A. a water soluble compound forming a conducting solution in water

B. a soft, easily deformed solid

C. a solid with a low melting point

D. an electrically conducting solid

Answer: A

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116. Sodium reacts with water more vigorously than lithium because

A. has highest atomic weight

B. is a metal

C. is more electronegative

D. is more electropositive

Answer: D

117. Which of the followint hydrogen comounds is most ionic

A. LiH

B. CsH

C. HF

D. HI

Answer: B

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118. Amongst sodium halides $\{NaF, NaCl, NaBr \text{ and } NaI)$, NaF has the highest melting point because of:

A. highest oxidising power

B. lowest polarity

C. maximum ionic character

D. minimum ionic character

Answer: C

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119. The order of solubility of lithium halides in nonpolar solvents follows the order :

A. $LiI > LiBr > LiCl > LiF$

B. $LiF > Lil > LiBr > LiCl$

C. $LiCl > LiF > LiI > LiBr$

D. $LiBr > LiCl > LiF > LiI$

Answer: A

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120. Melting points of chlorides of alkali metals follow the order

A. $LiCl > NaCl > KCl > RbCl > CsCl$

B. $NaCl > KCl > RbCl > CsCl > LiCl$

C. $KCl > RbCl > CsCl > LiCl > NaCl$

D. $LiCl > CsCl > RbCl > NaCl > KCl$

Answer: B

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121. All the alkali metals give characteristic flame test. The decreasing order of the frequency of light emitted by them is

A. $Li > Na > K > Rb > Cs$

B. $Li > Na = K = Rb > Cs$

C. $Li = Na > K > Rb = Cs$

D. $Cs > Rb > K > Na > Li$

Answer: D

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122. Sodium is heated in air at $300^{\circ}C$ to form X.X absorbs CO_2 and forms Na_2CO_3 and Y. Which of the following is Y ?

A. H_2

B. O_2

C. H_2O_2

D. H_2O

Answer: B

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123. One of the following statements is incorrect

A. Elements of group 2 are good conductors of electricity and heat

B. Compounds of group 2 elements are diamagnetic in nature

C. The salts of group 2 elements are more heavily hydrated than those of elements of group 1

D. Wlements of group 2 are more electropositive than group 1 elements

Answer: D

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124. If Na^+ ion is larger than Mg^{2+} ion and S^{2-} ion is larger than Cl^- ion, which of the following will be least soluble in water?

A. Sodium chloride

B. Soldium sulphide

C. Magnesium chloride

D. Magnesium sulphide

Answer: D

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125. Compounds of alkaline earth metals are less soluble in water than the corresponding alkali metal salts due to :

A. Lower lattice energies

B. Higher ionization enthalpies

C. Higher covalent character

D. Higher ionic character

Answer: C

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126. At the occasion of marriage , the fire workds are used, which of the following gives green flame ?

A. Na

B. K

C. Ba

D. Ca

Answer: C

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127. An atom with atomic number 20 is most likely to combine chemically with the atom whose atomic number is

A. 11

B. 14

C. 16

D. 10

Answer: C

Watch Video Solution

128. The decreasing order of the second ionization potentials of K, Ca and Ba is

A. $K > Ca > Ba$

B. $Ca > Ba > K$

C. $Ba > K > Ca$

D. $K > Ba > Ca$

Answer: A

Watch Video Solution

129. The atom with atomic number 12 will most likely combine chemically with atom whose atomic number is

A. 3

B. 5

C. 11

D. 16

Answer: D

Watch Video Solution

130. The value of X is maximum for

A. $MgSO_4.XH_2O$

B. $CaSO_4.XH_2O$

C. $BaSO_4.xH_2O$

D. All have the same value of x

Answer: A

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131. A compound X on heating gives a colourless gas. This residue is dissolved in water to obtain Y. excess CO_2 is bubbled through aqueous solution of Y, Z is formed. Z on gentle heating give back X. the X is

A. $NaHCO_3$m

B. Na_2CO_3

C. $Ca(HCO_3)_2$

D. $CaCO_3$

Answer: D

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132. A metal M readily forms water soluble sulphate MSO_4, water insoluble hydroxide $M(OH)_2$ and oxide MO which becomes inert on heating. The hydroxide is soluble in $NaOH$. The M is

A. Be

B. Mg

C. Ca

D. Sr

Answer: A

Watch Video Solution

133. identify the correct statement.

A. Elemental sodium can be reprared and isolated by electrolysing and aqueous solution of NaCl

B. Elemental Na is a stong oxidising agent

C. Element Na is insoluble in NH_3

D. Element Na is easily oxidised

Answer: A:D

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134. The stability of the following alkali metal chlorides follows the order:

A. $LiCL > KCl > NaClgrCsCl$

B. $CsCl > KCl > NaCl > LiCl$

C. $NaCl > KCl > LiCl > CsCl$

D. $KCl > CsCl > NaCl > LiCl$

Answer: D

Watch Video Solution

135. Which of the following has the highest melting point ?

A. NaCl

B. NaF

C. NaBr

D. NaI

Answer: B

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136. According to Fajans'rules, the percentage of covalent character in an ionic compound increase if the cation is highly charged or small in size and the anion is large or cation has pseudoinert gas configuration. As a result of the increased covalent character, solubility in less polar solvent increases and the melting point decreases.

The correct order of increasing ionic character is

A. $BeCl_2 < MgCl_2 < CaCl_2 < BaCl_2$

B. $BeCl_2 < MgCl_2 < BaCl_2 < CaCl_2$

C. $BeCl_2 < BaCl_2 < MgCl_2 < CaCl_2$

D. $BaCl_2 < CaCl_2 < MgCl_2 < BeCl_2$

Answer: A

Watch Video Solution

137. What is X in the following reaction ?

$$MgCl_2 + 2H_{92})O \rightarrow X + 2HCl + H_2O$$

A. MgO

B. Mg

C. $Mg(OH)_2$

D. $Mg(OH)Cl$

Answer: A

Watch Video Solution

138. For tow ionic solids CaO and KI, identify the wrong statement among the following ?

A. Lattice energy of CaO is much higher than that of KI

B. KI is soluble in benzene

C. CaO has high m.p.

D. KI has high m.p.

Answer: B

Watch Video Solution

139. Chemical A is used for water softening to remove temporary hardness. A reacts with sodium carbonate to generate caustic soda. When CO_2 is bubbled through a solution of A, it turns cloudy. What is the chemical formula of A ?

A. $CaCO_3$

B. CaO

C. $Ca(OH)_2$

D. $Ca(HCO_3)_2$

Answer: C

Watch Video Solution

140. A metal X on heating in nitrogen gas gives Y, Y on treatment with H_2O gives a colourless gas which when passed through $CuSO_4$ solution gives a blue colour. Y is:

A. $Mg(NO_3)_2$

B. Mg_3N_2

C. NH_3

D. MgO

Answer: B

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141. A fire work gave bright crimson light. It probably contain an element of

A. Ca

B. Na

C. Sr

D. Ba

Answer: C

Watch Video Solution

142. Which of the following compounds has the lowest anion to cation size ratio ?

A. LiF

B. NaCl

C. NaF

D. KF

Answer: D

Watch Video Solution

143. When $NaBH_4$ is dissolved in water

A. Na^+ and BH_4^- ions are formed which are stable

B. It decomposes with the evolution of H_2

C. BH_4^- is formed initially decompose to give OH^- ions, which prevent further decomposition

D. NaH and B_2H_6 are produced

Answer: C

Watch Video Solution

144. Consider

(1) Sodium dissolves in ammonia to give a blue coloured solution

(2) Sodium dies nto from amalgam with mercury

(3) Sodium can be cut with a knife

(4) Density of Na is more than that of Li

Of the given statements, the correct are

A. 1 and 2

B. 3 and 4

C. Only 2

D. 1, 3 and 4

Answer: D

View Text Solution

145. Which of the following does not contain the peroxide ion ?

A. K_2O

B. Na_2O_2

C. BaO_2

D. SrO_2

Answer: A

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146. The most abundant alkali metal in nature is :

A. Li

B. Na

C. Cs

D. K

Answer: B

Watch Video Solution

147. Which out of the following compounds is the most stable ?

A. LiF

B. LiCl

C. LiBr

D. LiI

Answer: A

Watch Video Solution

148. On heating sodium metal in a current of dry ammonia, the compound formed is

A. Sodium nitrite

B. Sodium hydride q

C. Sodium amide

D. Sodium nitrate

Answer: C

Watch Video Solution

149. KO_2 is-

A. Normal oxide

B. Super oxide

C. Suboxide

D. Peroxide

Answer: B

Watch Video Solution

150. A and B are two salts. A with dilute HCl and B with con. H_2SO_4 react to give reddish brown vapours, hence A and B respectively are :

A. $NaBr, NaNO_3$

B. $BaNO_3, NaBrO_3$

C. $NaBr, Na_2SO_4$

D. $NaNO_2, NaBr$

Answer: D

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151. Which of the following is correct ?

A. Lithium carbonate is soluble in water

B. Carbonates of Ca,Sr, Ba are soluble in water

C. Carbonates of Na^+, and NH_4^+ are soluble in water

D. Basic carbonates of Mg and Cu are soluble in water

Answer: C

View Text Solution

152. A colourless salt colours a bunsen flame golden yellow and also turns moistened litmus paper blue. The substance is

A. Na_2CO_3

B. KNO_3

C. K_2CO_3

D. $Cu(OH)_2$

Answer: B

 Watch Video Solution

153. Compound X and Y are obtained by the reaction of Cl_2 with cold and dilute solution of NaOH and compounds X and Z are formed with hot and

concentrated slution of NaOH. The compound Y and Z repeactively are

A. $NaCl, NaClO$

B. $NaClO, NaClO_3$

C. $NaCl, NaClO_3$

D. $NaClO, HCl$

Answer: B

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154. In $CsCl$, if the co-ordination number of Cs^+ is 8 then co-ordination number of Cl^- ion is

A. 8

B. 16

C. 6

D. 4

Answer: A

 Watch Video Solution

155. The quantum numbers for the outer electrons of an atom are given by

$n = 2, l = 0, m = 0, s = +1/2$

A. Boron

B. Lithium

C. Hydrogen

D. Sodium

Answer: B

Watch Video Solution

156. Diagonal relationship is shown by elements of

A. 1st period

B. 2nd period

C. 3rd period

D. 4th period

Answer: B

Watch Video Solution

157. The substances used as an antichlor in bleaching is

A. $Na_2S_2O_3$

B. $NaOH$

C. Na_2SO_4

D. $NaCl$

Answer: A

Watch Video Solution

158. Which is the composition of fusion mixture ?

A. $K_2CO_3 + NH_4Cl$

B. $K_2CO_3 + Na_2CO_3$

C. $KNO_3 + KCl$

D. None of these

Answer: D

Watch Video Solution

159. lithium has highest ionisation energy but is strongest reducing agent in solution because of its

A. Covalent nature

B. Greater heat of atomisation

C. Greater heat of hydration

D. Greater sublimation energy

Answer: C

Watch Video Solution

160. Which one of the following is/are acid slat/s ?

A. NaH_2PO_2

B. NaH_2PO_3

C. NaH_2PO_4

D. All are acid salts

Answer: D

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161. If NaOH is added to an aqueous solution of Zn^{2+} ions a white precipitate apperars and on

adding excess of NaOH, the precipitate dissolves. In this solution Zinc exists in_____

A. Cationic part

B. Anionic part

C. Both in cationic anionic parts

D. There is no zinc left in the solution

Answer: B

 Watch Video Solution

162. Hypo is another name for

A. Sodium sulphite

B. Sodium sulphate

C. Sodium thiosulphate

D. None of the above

Answer: C

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163. The following are some of the methods commonly employed for the extraction of metals from their ores. Which of the following methods is generally employed for the extraction of sodium ?

A. Reduction of an oxide with coke

B. Electrolysis of an aqueous solution of a chloride

C. Electrolysis of a melten chloride containing $CaCl_2$

D. Reduction of a chloride with more reactive metal

Answer: C

Watch Video Solution

164. A solution of I_2 in aqueous Kl on reaction with an aqueous solutionof $Na_2S_2O_3$ gets decolourised. The reaction taking place here is

A. $Na_2S_2O_3 + H_2O + I_2 \rightarrow Na_2S_2O_4 + 2HI$

B. $2Na_2S_2O_3 + I_2 \rightarrow Na_2S_4O_6 + 2NaI$

C. $Na_2S_2O_2 + 2H_2O + 2I_2 \rightarrow Na_2S_2O_5 + 4HI$

D.

$$2Na_2S_2O_3 + 2H_2O + 2I_2 \rightarrow Na_4S_4O_8 + 4HI$$

Answer: B

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165. The formula for dosium nitroprusside is

A. $Na_4\left[Fe(CN)_5NOS\right]$

B. $Na_2\left[Fe(CN)_5NO\right]$

C. $NaFe\left[Fe(CN)_6\right]$

D. $Na_2\left[Fe(CN)_6NO_2\right]$

Answer: B

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166. Crystals of washing soda lose nine molecules of water when exposed to dry air. This phenomenon is

known as

A. Dehydration

B. Hydration

C. Deliquescence

D. Efflorescence

Answer: D

Watch Video Solution

167. A pale yellow precipitate is insoluble in water, con. Acids and ammonia. However it is soluble in

hyop $(Na_2S_2O_3.5H_2O)$ solution. The molecular formula of the compound is

A. $Ag_2S_2O_3$

B. Ag_2S

C. $AgCl$

D. $AgBr$

Answer: D

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168. Which one of the following ore dies not contain magnesium ?

A. Carnallite

B. Dolomite

C. Cryolite

D. All of these

Answer: C

Watch Video Solution

169. Which of the following solids is polymeric ?

A. CaH_2

B. NH_3

C. LiH

D. None of these

Answer: D

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170. Amongst the metal Be, Mg, Ca and Sr of group 2 of the periodic table, the least ionic chloride would be formed by

A. Be

B. Mg

C. Ca

D. Sr

Answer: A

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171. At high temperature, nitrogen combines with CaC_2 to give :

A. Calcium cyanide

B. Calcium cyanamide

C. Calcium carbamide

D. Calcium nitride

Answer: B

Watch Video Solution

172. Which of the following metals is present chlorophyll?

A. Mg

B. Zn

C. Ca

D. Co

Answer: A

Watch Video Solution

173. Electric cookers have a coating that protects them against firer. The coating is made of

A. Heavy lead

B. Magnesium oxide

C. Zinc oxide

D. Sodium sulphate

Answer: B

Watch Video Solution

174. Moratar is a mixture of

A. $CaCO_3$ and CaO

B. Slaked lime,annd, water

C. Slaked lime and water

D. $CaCO_3$, sand and water

Answer: B

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175. The most efficient method of extraction of beryllium is

A. Reduction of beryllium halide with magnesium

B. Reaction of beryllium oxide with magnesium

C. Electrolysis of fased beryllium chloride

D. All the above

Answer: C

 Watch Video Solution

176. Chemical A is used for water softening to remove temporary hardness. A reacts with sodium carbonate to generate caustic soda. When CO_2 is bubbled through a solution of A, it turns cloudy. What is the chemical formula of A ?

A. $CaCO_3$

B. CaO

C. $Ca(OH)_2$

D. $Ca(OCO_3)_2$

Answer: C

Watch Video Solution

177. Amongst the following hydroxides, the one which has the lowest value of K_{sp} is:

A. $Mg(OH)_2$

B. $Ca(OH)_2$

C. $Ba(OH)_2$

D. $Be(OH)_2$

Answer: D

 Watch Video Solution

178. The colours emitted by excited atoms are characteristics of element. The element famous for the red emission of fireworks and warning flares is

A. Pb

B. Mg

C. Sr

D. Ba

Answer: C

Watch Video Solution

179. Superphosphate of lime is

A. Primary calcium phosphate and epsom

B. Primary magnesium phosphate and epsom

C. Primary magnesium phosphate and gypsum

D. Primary calcium phosphate and gypsum

Answer: D

Watch Video Solution

180. For bleaching powder which is incorrect ?

A. It is highly soluble in water

B. It is light yellow powder

C. It is an oxidising agent

D. It reacts with dilute acids to release chlorine

Answer: A

Watch Video Solution

181. The decreasing order of the second ionisation potential of K , Ca and Ba is

(At. No : K = 19 , Ca = 20 , Ba = 56)

A. $K > Ca > Ba$

B. $Ca > Ba > K$

C. $Ba > K > Ca$

D. $K > Ba > Ca$

Answer: A

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182. When zeolite, which is hydrated sodium aluminium silicate, is treated with hard water, the sodium ions are exchanged with

A. H^+ ions

B. Ca^{2+} ions

C. So_4^{2-} ions

D. Mg^{2+} ions

Answer: B

Watch Video Solution

183. Consider the following substances

$(1) BeSO_3 \quad (2) MgSO_4$

$(3) CaSO_4 \quad (4) SrSO_4$

The correct order of solubilities is

A. $1 > 2 > 3 > 4$

B. $1 < 2 < 3 < 4$

C. $2 > 3 > 1 > 4$

D. $1 > 4 > 3 > 2$

Answer: A

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184. Match the list I and list II and select the correct answer using the codes given below the lists.

List I	List II
(A) Beryl	(1) $KCl \cdot MgCl_2 \cdot 6H_2O$
(B) Carnalite	(2) $MgCO_3$
(C) Asbestos	(3) $MgSO_4 \cdot 7H_2O$
(D) Magnesite	(4) $Ca_2Mg_5Si_8O_{22}(OH)_2$
	(5) $CaSO_4 \cdot 2H_2O$
	(6) $3BeO \cdot Al_2O_3 \cdot 6SiO_2$

A. A-6,B-1,C-4,D-3

B. A-6,B-1,C-4,D-2

C. A-6,B-1,C-5,D-2

D. A-5,B-2,C-4,D-3

Answer: A

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185. A chemistry student trying to detect the metallic ion in a salt, makes a paste on a clean platinum wire loop of the salt with concentrated HCl. When he takes a small amount of this paste and keeps it in a non-luminous Bunsen flame, the colour of the flame changes to grassy green.He should, therefore, conclude that the metal is

A. Ba

B. Ca

C. K

D. Sr

Answer: A

Watch Video Solution

186. Which one is precipitated in ionic form on Ptelectode ?

A. Li^{++}

B. Na^{++}

C. Mg^{++}

D. Ca^{++}

Answer: C

View Text Solution

187. The solubility of alkali metals salts in water is due to the fact that the cations get hydrated by water molecules. The degree of hydration depends upon the size of the cation. If the trend of relative ionic radii is $Cs^+ > Rb^+ > K^+ > Na^+ > Li^+$. What is the relative degree of hydration?

A.

$$Cs^+_{(aq)} > Rb^+_{(aq)} > K^+_{(aq)} > Na^+_{(aq)} > Li^+_{(aq)}$$

B.

$$Li^+_{(aq)} > Na^+_{(aq)} > K^+_{(aq)} > Rb^+_{(aq)} > Cs^+_{(aq)}$$

C.

$$Na^{+}_{(aq)} > K^{+}_{(aq)} > Rb^{+}_{(aq)} > Cs^{+}_{(aq)} > Li^{+}_{(aq)}$$

D.

$$Cs^{+}_{(aq)} > Na^{+}_{(aq)} > Li^{+}_{(aq)} > K^{+}_{(aq)} > Rb^{+}_{(aq)}$$

Answer: B

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188. Lithium salts are mostly hydrated . Why ?

A. maximum ionisation enthalpy

B. maximum degree of hydration of Li^{+}

C. maximum hygroscopic nature

D. maximum chemical reactivity

Answer: B

Watch Video Solution

189. The alkali metals dissolve in ammonia to give a deep blue solution which is conducting in nature.

$$M + (x + y)NH_3 \rightarrow \left[M(NH_3)_x\right]^{2+} + 2\left[e(NH_3)_y\right]^-$$

Which of the following is not true about the solutions of alkali metals in liquid ammonia ?

A. The blue colour is due to ammoniated electron

B. The solution is paramagnetic

C. The blue colour changes to brown on standing

D. The concentrated solution blue colour changes to bronze and becomes diamagnetic

Answer: C

Watch Video Solution

190. All alkali halides are soluble in water expect Lif. The low solubility of LiF in water is due to its $\underline{(i)}$ the low solubility CsI is due to $\underline{(ii)}$. LiF is soluble in $\underline{(iii)}$ solvent.

	(i)	(ii)	(iii)
A.	low lattic enthalpy	larger hydrration enthalpy	polar solvents
	(i)	(ii)	(iii)
B.	high lattice enthalpy	smaller hydration enthalpy	non-polar solvents
	(i)	(ii)	(iii)
C.	high hydration enthalpy	high lattice enthalpy	non-polar solution
	(i)	(ii)	(iii)
D.	smaller hydration enthalpy	high lattice enthalpy	polar solvents

Answer: B

View Text Solution

191. A certain compound (A) imparts a golden yellow flame and exhibits following reactions:

(a). When a concentrated solution of (A) is boiled with Zn powder, hydrogen gas is evolved.

(b). When an aqueous solution of (A) is added to an aqueous solution of stannous chloride, a white precipitate is obtained, which dissolves in excess of solution (A).

Identify (A) and give equations for reactions in (a) and (b).

A. $\begin{matrix} X & Y & Z \\ NaOH & Na_2CO_3 & NaHCO_3 \end{matrix}$

B. `{:(" "X," "Y," "Z), (HCl, NaOH, NaHCO_(3)):}

C. $\begin{matrix} X & Y & Z \\ KOH & K_2CO_3 & KHCO_3 \end{matrix}$

D. $\begin{matrix} X & Y & Z \\ NaCl & Na_2CO_3 & NaOH \end{matrix}$

Answer: A

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192. Assertion: Alkali metals are obtained by electrolysis of molten salt and not aqueous solution. Reason: The discharge potential of H^+ ions is lower than alkali metals cation hence hydrogen is discharged at cathode instead of metal.

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 the correct explanation of assertion

C. Assertion is true but reason is false

D. But assertion and reason are false

Answer: A

Watch Video Solution

193. Which of the following increasing order is not correct as mentioned in the property with it?

A. $CsCl < RbCl < KCl < NaCl < LiCl$

(Lattice energy)

B. $LiOH < NaOH < KOH$ (Solubility in water)

C. $Li^+ < Na^+ < K^+ < Rb^+ < Cs^+$ (Size of hydrated ion)

D. $NaI < NaBr < NaCl < NaF$ (Lattice energy)

Answer: C

Watch Video Solution

194. A white solid X on heating gives a white solid Y and an acidic gas Z. Gas Z is also given out when X reacts with an acid. The compound Y is also formed if caustic soda is left open in the atmosphere. X, Y and Z are

A. $\underset{NaHCO_3}{X}\quad\underset{Na_2CO_3}{Y}\quad\underset{CO_2}{Z}$

B. $\underset{Na_2CO_3}{X}\quad\underset{NaOH}{Y}\quad\underset{CO_2}{Z}$

C. $\underset{Na_2CO_3}{X}\quad\underset{NaHCO_3}{Y}\quad\underset{CO_2}{Z}$

D. $\underset{NaOH}{X}\quad\underset{NaHCO_3}{Y}\quad\underset{CO_2}{Z}$

Answer: A

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195. Match the column I with column II and mark the appropriate choice.

Column I	Column II
(A) Na	(i) Crimson red
(B) K	(ii) Yellow
(C) Sr	(iii) Apple green
(D) Ba	(iv) Violet

A.

$(A) \rightarrow (i), B \rightarrow (ii), (C) \rightarrow (iii), (D) \rightarrow (iv)$

B.

$(A) \rightarrow (ii), B \rightarrow (iv), (C) \rightarrow (i), (D) \rightarrow (iii)$

C.

$(A) \rightarrow (iv), B \rightarrow (iii), (C) \rightarrow (ii), (D) \rightarrow (i)$

D.

$$(A) \rightarrow (iii), B \rightarrow (iv), (C) \rightarrow (i), (D) \rightarrow (ii)$$

Answer: B

Watch Video Solution

196. Identify W, X, Y and Z respectively in the given reactions.

$$CaCO_3 \xrightarrow{\Delta} W + X$$

$$W + H_2O \rightarrow Y$$

$$Y + Z \rightarrow NaOH + CaCO_3$$

A. $CaO, CO_2, CaCO_3, Na_2CO_3$

B. $CO_2, Ca(OH)_2, Ca(HCO)_3, NaHCO_3$

C. $CaO, CO_2, Ca(OH)_2, Na_2CO_3$

D. $CO_2, CaO, H_2CO_3, Na_2CO_3$

Answer: C

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197. A metal X reacts with water to produce a highly combustible gas Y, and a solution A. Another metal P reacts with Z to give the same gas Y, Z, Y, Z and P respectively are

A. $Zn, H_2, Zn(OH)_2Al$

B. $Na, H_2, NaOH, Zn$

C. K, H_2, KOH, Al

D. $Li, H_2, LiOH, K$

Answer: B

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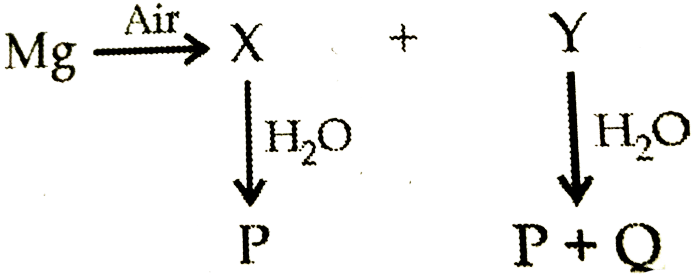
198. What happens when magnesium is burnt in air and the products X and Y are treated with water ?



A. $\begin{array}{cccc} X & Y & P & Q \\ MgO & Mg(OH)_2 & Mg(OH)_2 & N_2 \end{array}$

B. $\begin{array}{cccc} X & Y & P & Q \\ MgO & Mg_3N_2 & Mg(OH)_2 & NH_3 \end{array}$

C. $\begin{array}{cccc} X & Y & P & Q \\ MgO & Mg_3N_2 & Mg(OH)_2 & N_2 \end{array}$

D. $\begin{array}{cccc} X & Y & P & Q \\ MgO & MgCO_3 & Mg(OH)_2 & CO_2 \end{array}$

Answer: B

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199. When $BeCl_2$ is hydrolyzed, fumes evolve and fumes are intensified when glass rod moist with ammonia is placed near the mouth of test tube. Explain this process of hydrolysis.

A. Cl_2

B. HCl

C. NH_4OH

D. NH_4Cl

Answer: B

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200. Assertion : Be and Mg do not impart characteristic colour to the flame.

Reason : Both Be and Mg have high ionisation energy.

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 the correct explanation of assertion

C. Assertion is true but reason is false

D. But assertion and reason are false

Answer: A

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201. Complete the following equations :

(i) $Na_2O_2 + 2H_2O \rightarrow (W) + H_2O_2$

(ii) $2KO_2 + 2H_2O \rightarrow (X) + (Y) + O_2$

(iii) $Na_2O + CO_2 \rightarrow (Z)$.

A. $\begin{matrix} W & X & Y & Z \\ 4Na & K_2O & H_2O_2 & Na_2CO_3 \end{matrix}$

B. $\begin{matrix} W & X & Y & Z \\ 4Na & K_2O & H_2O_2 & Na_2CO_3 \end{matrix}$

C. $\begin{matrix} W & X & Y & Z \\ 4NaOH & 2KOH & H_2O & Na_2O_2 \end{matrix}$

D. $\begin{matrix} W & X & Y & Z \\ 2NaOH & 2KOH & H_2O_2 & Na_2CO_3 \end{matrix}$

Answer: D

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202. One word answer is given for the following definitions, Mark the one which is incorrect.

A. Alkali metal with lowest melting point-Cs

B. Alkaline earth metal with highest hydration enthalpy - Ba^{2+}

C. Alkaline earth metal which imparts brick red colour to the flame $-Ca^{2+}$

D. Oxide of alkaline earth metal which is amphoteric in nature - BeO

Answer: B

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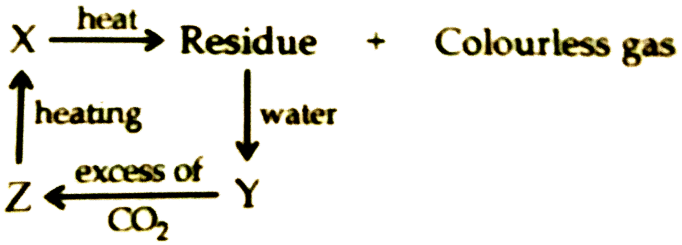

203.

Identigy, X, Y and Z.

A. $\begin{matrix} X & Y & Z \\ Ca(HCO_3)_2 & CaCO_3 & Ca(OH)_2 \end{matrix}$

B. $\begin{matrix} X & Y & Z \\ CaCO_3 & Ca(OH)_2 & Ca(OH)_2 \end{matrix}$

C. $\begin{matrix} X & Y & Z \\ CaCO_3 & Ca(OH)_2 & Ca(HCO_3)_2 \end{matrix}$

D. $\begin{matrix} X & Y & Z \\ CaCO_3 & CaO & Ca(HCO_3)_2 \end{matrix}$

Answer: C

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204. Two metals (A) and (B) belong to the same group of the periodic table. Metal (A) forms insoluble oxide but a soluble sulphate, metal (B) forms a soluble oxide but an insoluble sulphate. Both metals (A) and (B) form hydroxides which are soluble in alkalis. (A) and (B) are

A. $X = Br, Y = Ba$

B. $X = Mg, Y = Ca$

C. $X = Ca, Y = Sr$

D. $X = Ba, Y = Mg$

Answer: A

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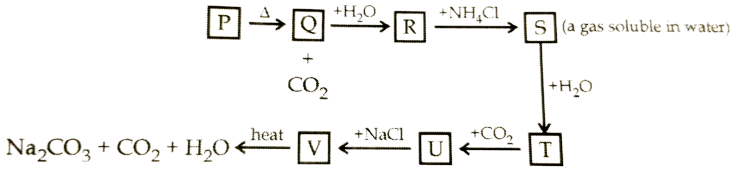
205. Study the road map for preparation of washing soda and fill up the blanks.



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206. The metal that cannot obtained by electrolysis of an aqueous solution of its salts is :

A. Cu

B. Cr

C. Ag

D. Ca

Answer: D

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Test Your Grasp

1. Which of the following sets of atomic numbers is of the alkali metals ?

A. $2, 10, 18$

B. $7, 17, 27$

C. $15, 320, 30$

D. $3, 11, 19$

Answer: D

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2. The elements of group 1 are called alkali metals because

A. the metals are corroded by alkali

B. their oxides are alkaline

C. their hydrides are strongly alkaline

D. None of the above

Answer: B

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3. Chill salt petre is

A. Na_2SO_4

B. $NaNO_3$

C. K_2SO_4

D. KNO_3

Answer: B

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4. Which of the following is sparingly soluble in water ?

A. Na_2CO_3

B. $LiCO_3$

C. K_2CO_3

D. $NaNO_3$

Answer: B

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5. Which of the following statement is incorrect ? a)Oxide of aluminium (Al_2O_3) and arsenic (As_2O_3) are amphoteric. b)Oxide of chlorine (Cl_2O_7) is less acidic than oxide of nitrogen (N_2O_5). c)Oxide of carbon (CO_2) is more acidic than oxide of silica (SiO_2). d)The correct increasing order of basic character of various oxides is $H_2O < CuO < MgO < CaO$.

A. Li metal is not affected by dry air

B. When burnt in oxygen, Li metal forms super oxide, LiO_2

C. Li combines with nirtogen directly form Li_3N

D. Li has great tendency to form hydrates

Answer: D

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6. Pick out statement (s) which is/are not true about diagonal relationship of Li and Mg:

A. Polarising powers of $Li^{\oplus}$ and Mg^{2+} ions are almost the same.

B. Like Li, Mg decomposes water very fast.

C. LiCI and $MgCl_2$ are deliquesent.

D. Like Li, Mg readily reacts with liquid bromine at ordinary temperature.

A. Only A

B. Only B

C. Only C

D. B and D

Answer: D

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7. Which one is the highest melting halide ?

A. NaCl

B. LiCl

C. LiBr

D. NaI

Answer: A

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8. "Electron" is an alloy of

A. Mg and Zn

B. Fe and Mg

C. Ni and Zn

D. Al and Zn

Answer: A

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9. Sodium burns in dry air to give

A. Na_2O

B. Na_2O_2

C. NaO_2

D. Na_3N

Answer: B

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10. Select odd pair of name of chemical and its chemical composition.

A. Soda ash : Na_2CO_3

B. Caustic soda : $NaHCO_3$

C. Washing soda : $NaHCO_3$

D. Baking soda : $NaHCO_3$

Answer: C

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11. The raw materials required for the manufacture of Na_2CO_3 by Solvay process are :

A. $CaCl_2, (NH_4)_2CO_3, NH_3$

B. $NH_4Cl, NaCl, Ca(OH)_2$

C. $NaCl, (NH_4)_2CO_3, NH_3$

D. $NaCl, NH_3, CaCO_3$

Answer: D

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12. The carbonate that will not decompose on heating is

A. Na_2CO_3

B. $CaCO_3$

C. $BaCO_3$

D. Li_2CO_3

Answer: D

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13. The alkali metal used in photoelectric cell is

A. K

B. Cs

C. Li

D. Fr

Answer: B

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14. Which of the following if good source of potassium ?

A. Butter

B. Bananas

C. Ghee

D. Oil

Answer: B

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15. The first ionization enthalpy of magnesium is lower than the first ionizxation enthalpy of

A. Lithium

B. Sodium

C. Calcium

D. Beryllium

Answer: D

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16. Which of the following feact only with boiling water ?

A. Be

B. Mg

C. Ca

D. Sr

Answer: B

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17. Mg burns in air to give

A. MgO

B. Mg_3N_2

C. $MgCO_3$

D. MgO and Mg_3N_2 both

Answer: D

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18. Beryllium and aluminium exhibit many properties which are similar . But, the two elements differ in

A. Exhibiting maximum covalancy in compounds

B. Exhibiting amphoteric nature in their oxides

C. Forming covalent halides

D. Forming polymeric hydrides

Answer: A

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19. Which of the following is not a compound of calcium ?

A. Chalk

B. Gypsum

C. Quick lime

D. Silica

Answer: D

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20. Mark the compound which does not contain calcium carbonate ?

A. Fluorspar

B. Iceland spar

C. Marble

D. Limestone

Answer: A

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21. Which of the following is used as barium metal for getting the X-ray spectrum of the human digestive system?

A. $BaSO_4$

B. $BaCl_2$

C. BaF_2

D. $BaCO_3$

Answer: A

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22. Which of the following metal ions plays an important role in muscle contraction?

A. K^+

B. Na^+

C. Be^{2+}

D. Ca^{2+}

Answer: D

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23. Chloride of an element A gives neutral solution in water. In the periodic table, the elements A belong to

A. Group 1

B. Group 13

C. Group 15

D. Group 18

Answer: A

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24. Which of the alkali metals has the polarizing power close to that of Magnesium ?

A. Li

B. Na

C. K

D. Rb

Answer: A

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25. Chemical name of soda ash is

A. Sodium carbonate

B. Sodium bicarbonate

C. Sodium hyroxide

D. Sodium chloride

Answer: A

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26. Which of the following is used as a scavenger in metallurgy ?

A. Be

B. Mg

C. Ca

D. Sr

Answer: C

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27. The electronic configuration of two neutral elements A and B are

$A = 1s^2 2s^2 2p^6 3s^2$

$B = 1s^2 2s^2 2p^5$

Which of the following represents the structure of the compound formed by them ?

A. $A^{2+}B^{2-}$

B. $B^{2-}\left(A^{-}\right)_2$

C. $A^{2+}\left(B^{-}\right)_2$

D. $A^{+}B^{-}$

Answer: C

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28. The charge/size ratio of a cation determines its polarizing power. Which one of the following sequences represents the increasing order of the polarizing power of the cationic species, $K^+, Ca^{2+}, Mg^{2+}, Ba^{2+}$

A. $Ca^{2+} < Mg^{2+} < Be^{2+} < K^+$

B. $Bg^{2+} < Be^{2+} < K^+ < Ca^{2+}$

C. $Be^{2+} < K^+ < Ca^{2+} < Mg^{2+}$

D. $K^+ < Ca^{2+} < Mg^{2+} < Be^{2+}$

Answer: D

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29. Compared with the alkaline earth metals, the alkali metals exhibit

A. Smaller ionic radii

B. Highest boiling points

C. Greater hardness

D. Lower ionisation enthalpies

Answer: D

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30. which of the following configurations is correct for alkaline earth elements?

A. $[Ne]2s^2 2p^2$

B. $[Ar]4s^2$

C. $[Ar]3d^{10}4s^1$

D. $[Ar]3d^{10}4s^2$

Answer: B

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31. The least abundant alkaline earth metal is

A. Barium

B. Radium

C. Magnesium

D. Lithium

Answer: B

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32. The most reactive elements is

A. Be

B. Ba

C. Sr

D. Mg

Answer: B

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