CHEMISTRY

BOOKS - OMEGA PUBLICATION

THE S-BLOCK ELEMENTS

Group Elements Alkali Metals

1. How does atomic size varies along the period and down the group in s-block elements?

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2. Using s, p, d and f notations, describe the orbital with the quantum number. n = 2 , l = 1

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3. Using s, p, d and f notations, describe the orbital with the quantum number. n = 4 , l = 0

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4. Using s, p, d and f notations, describe the orbital with the quantum number. $n = 3$, $l = 0$

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5. For $n = 4$, which one of the following values of l is not possible?

A. 1

B. 2

C. 3

D. 4

Answer:

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6. Name the element with electronic configuration 1s2 2s2 2p6 3s2

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7. In 4s and 3d which have the lowest sum of (n + l) value .

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8. Why are alkali metals are highly reactive in nature ?

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9. Alkenes are reactive in nature, why ?

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10. Cork cambium forms tissues that form the cork. Do you agree with this statement? Explain

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11. How do metals react with: dilute acids

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12. Why can't sodium be stored in water ?

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13. What happens when

(i) Na metal is dropped in water ?

(ii) Na metal is heated in free supply of air ?

(iii) Sodium peroxide (Na_2O_2) dissolved in water ?

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14. Why alkali metals act as the strongest reducing agents ?

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15. Which alkali metals acts as the strongest reducing agent in aqueous solution ?

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16. Why solution of alkali metals in liquid ammonia are blue in colour and conducting in

nature ?

OR

Solutions of alkali metals in liquid ammonia has high conductivity, paramagnetic and posses blue colour. Explain.

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17. Explain why sodium is less reactive than potassium ?

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General Characteristics Of The Compound Of The Alkali Metals

1. Give the general characteristics of the compounds of the alkali metals.

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2. What is similar about electronic structure of Li, Na and K ?

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Anomalous Properties Of Lithium

1. Why lithium shows anomalous behaviour ?

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2. Why are potassium and aesium, rather than lithium is used in photoelectric cells ?

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3. Lithium is the only alkali metal which form nitride directly. Comment.

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4. How many core electrons are present in potassium. (atomic no = 19).

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Some Important Compounds Of Sodium

1. Give the chemistry of Solvay process for the manufacture of Na_2CO_3.

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2. Explain state as why the solution of Na_2CO_3 is alkaline ?

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3. Give the theory of manufacture of washing soda by Solvay's process.

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4. Give the different uses of sodium carbonate or washing soda.

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5. Which of them is the strongest base: (a) NaOH

(b) LiOH

(c) KOH

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6. How Bromoalkanes are prepared?

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7. How sodium hydroxide is prepared ?

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8. What is a brine solution ?

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9. Give the theory of manufacture of caustic soda by Castner Kellner's process ?

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10. Give the various uses of sodium hydroxide, NaOH.

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11. How is baking soda prepared ? Why is it used as a fire extinguisher ?

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12. What is the difference between baking soda and baking powder ?

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13. Out of KOH and NaOH, which is a stronger base and why ?

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Group 2 Elements Alkaline Earth Metals

1. Explain why alkalinie earth metals are denser than alkali metals ?

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2. Explain Co^{2+} is coloured whereas Ti^{4+} is colourless. Why ?

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3. Why calcium fluoride is added durig the electrolysis of calcium chloride ? Explain.

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4. Name the alkaline earth metal hydroxide which is amphoteric.

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5. Which alkaline earth metal is radioactive ?

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6. What are alkaline earth metals ?

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7. Why Mg does not impart colour to the flame ?

OR

Why Be and Mg do not impart any colour to the flame ?

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8. How halogens (X_2) chemically react with alkaline earth metals ?

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9. How diborane is prepared ?

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10. Name two ores of magnesium.

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11. What is milk of magnesia ?

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General Characteristics Of Compound Of The Alkaline Earth Metals

1. Give the general characteristics of the compounds of alkaline earth metals.

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2. Give the structure of $BeCl_2$ in the solid state above 1200 K.

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Anamalous Behaviour Of Beryllium

1. What is the anomalous behaviour of beryllium ?

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2. What is meant by "diagonal relationship" in the periodic table ? What is it cause ?

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Some Important Compound Of Calcium

1. What is quick lime ? How is it prepared and give its important uses ?

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2. What happens when we add water to quick lime ?

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3. How calcium hydroxide is prepared ?

OR

How slaked lime is prepared ?

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4. What happens when calcium hydroxide is treated with chlorine ?

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5. What happens when (i) magnesium is burnt in air, (ii) quick lime is heated with silica,

(iii) chlorine reacts with slaked lime, (iv) calcium nitrate is heated.

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6. What happen when lime is heated with coke ?

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7. Give the various uses of $Ca(OH)_2$ or slaked lime.

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8. Give the different methods for preparation of calcium carbonate.

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9. What is the formula of dolomite ?

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10. Give the various uses of $CaCO_3$.

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11. What is plaster of paris ? How is it prepared ? Give its properties.

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12. Which compound of calcium is used in surgical bandages during fractured bones of

the body ?

13. What is dead burnt plaster ?

14. Write important uses of plaster of paris

15. What is the composition of portland cement ?

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16. The ability of venux fly-trap to capture insects id due to:

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17. How Alkyl iodides are prepared?

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Multiple Choice Questions Mcq S

1. Which of the following represents electronic configuration of alkali metals.

A. $(n-1)s^2p^6ns^1$

B. $(n-2)s^2p^6d^{10}ns^1$

C. $(n-1)s^2p^6np^1$

D. $(n-1)s^2p^6d^{10}ns^2$

Answer: A

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2. What is kharasch effect?

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3. In general, the melting and boiling point of transition metals

A. covalent bonding

B. ionic bonding

C. van der waals attraction

D. metallic bonding

Answer: D

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4. The element of group I are called alkali metals because

A. their hydrides are strongly alkaline

B. the metals are corroded by alkali

C. their oxides and hydroxides are alkaline

D. none of the above

Answer: C

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5. which reaction is used for the detection of unsaturation in an organic molecule?

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6. What is allylic halogenation?

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7. In the reaction $M + O_2 \rightarrow MO_2$ (superoxide), the metal M is

A. Li

B. Na

C. K

D. Ba

Answer: C

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8. A solution of sodium metal in liquid ammonia acts as a strong reducing agent due to the presence of

A. $NaNH_2$

B. sodium ions

C. sodium hydride

D. solvated electrons

Answer: D

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9. The strongest reducing agent among all the halide ions is .....

A. Na

B. K

C. Li

D. Cs

Answer: C

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10. Do you find that all living beings need the same kind of food?

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11. What is the sum of (n + l) value of 4d.

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12. What is the electronic configuration of argon.

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13. What is the electronic configuration of chlorine atom.

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14. Alkali metals give colour to Bunsen flame due to

A. low ionization potential

B. low m.p.

C. softness

D. one electron in outermost orbit

Answer: A

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15. Lithium shows diagonal relationship with

A. magnesium

B. beryllium

C. aluminium

D. boron

Answer: A

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16. IUPAC name of element having atomic number 108 is .....

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17. Castner-Kellner cell is used for the manufacture of

A. NaCl

B. Na_2CO_3

C. $NaOH$

D. $NaHCO_3$

Answer: C

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18. Alkali metals are good reducing agents because they easily

A. gain electrons

B. lose electrons

C. complete their octet

D. react with water

Answer: B

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19. Which one of the following alkali metals is used in photoelectric cells ?

A. Li

B. Na

C. Cs

D. Fr

Answer: C

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20. Write name of element with the following electronic configuration : 1s2 2s2 2p6 3s2 3p2

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21. Which of the following has largest concentration in acid rain?

A. Na

B. Na^{+}

C. Na^{-}

D. None

Answer: C

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22. Write name of element with the following electronic configuration : 1s2 2s2 2p5

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23. LiOH is

A. a weak base

B. a strong base

C. an amphoteric compound

D. an acid compound

Answer: A

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24. The number of unpaired electrons in magnesium is .....

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25. Write name of element with the following electronic configuration : 1s2 2s2 2p6 3s2 3p6 3d5 4s1

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26. The maximum number of electrons in M shell of silicon is .....

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