The s-block Elements

Q.No.1:
The first ionisation potential of Na is 5.1 eV. The value of electron gain enthalpy of Na^+ will be :

JEE 2013

A. − 2.55 eV
B. − 5.1 eV
C. − 10.2 eV
D. + 2.55 eV

Q.No.2: The molecular formula of a commercial resin used for exchanging ions in water softening is $C_8H_7SO_3Na$ (mol. wt. 206). What would be the maximum uptake of Ca^{2+} ions by the resin when expressed in mole per gram of resin?

JEE 2015

A. $\frac{1}{103}$
B. $\frac{1}{206}$
C. $\frac{2}{309}$
D. $\frac{1}{412}$

Q.No.3: Which one of the following alkaline earth metal sulphates has its hydration enthalpy greater than its lattice enthalpy? **JEE 2015**

A. $CaSO_4$
B. $BeSO_4$
C. $BaSO_4$
D. $SrSO_4$

Q.No.4: The main oxides formed on combustion of Li, Na and K in excess of air

are, respectively: **JEE 2016**

A. LiO_2, Na_2O_2 and K_2O

B. Li_2O_2, Na_2O_2 and KO_2

C. Li_2O, Na_2O_2 and KO_2

D. Li_2O, Na_2O and KO_2

Q.No.5: Both lithium and magnesium display several similar properties due to the diagonal relationship; however, the one which is incorrect, is : **JEE 2017**

A. both form soluble bicarbonates

B. both form nitrides

C. nitrates of both Li and Mg yield NO_2 and O_2 on heating

D. both form basic carbonates

Q.No.6: The alkaline earth metal nitrate that does not crystallise with water molecules, is: **JEE 2019**

A. $Mg(NO_3)_2$

B. $Sr(NO_3)_2$

C. $Ca(NO_3)_2$

D. $Ba(NO_3)_2$

Q.No.7: The amphoteric hydroxide is: **JEE 2019**

A. $Be(OH)_2$

B. $Ca(OH)_2$

C. $Mg(OH)_2$

D. $Sr(OH)_2$

Q.No.8: Match the following items in **column I** with the corresponding items in **column II**.

Column I		**Column II**
(i) $Na_2CO_3 . 10H_2O$	(A)	Portland cement ingredient
(ii) $Mg(HCO_3)_2$	(B)	Castner-Kellner process
(iii) NaOH	(C)	Solvay process
(iv) $Ca_3Al_2O_6$	(D)	Temporary hardness

JEE 2019

A. (i) → (B); (ii) → (C); (iii) → (A); (iv) → (D)
B. (i) → (C); (ii) → (B); (iii) → (D); (iv) → (A)
C. (i) → (D); (ii) → (A); (iii) → (B); (iv) → (C)
D. (i) → (C); (ii) → (D); (iii) → (B); (iv) → (A)

Q.No.9: The correct set from the following in which both pairs are in correct order of melting point is **JEE 2021**

A. LiCl > LiF; NaCl > MgO
B. LiF > LiCl; MgO > NaCl
C. LiCl > LiF; MgO > NaCl
D. LiF > LiCl; NaCl > MgO

Q.No.10: Match List - I with List - II.

List - I (Salt)	**List - II (Flame colour wavelength)**
(a) LiCl	(i) 455.5 nm
(b) NaCl	(ii) 670.8 nm
(c) RbCl	(iii) 780.0 nm
(d) CsCl	(iv) 589.2 nm

Choose the correct answer from the options given below: **JEE 2021**

A. (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)
B. (a)-(ii), (b)-(iv), (c)-(iii), (d)-(i)
C. (a)-(iv), (b)-(ii), (c)-(iii), (d)-(i)
D. (a)-(i), (b)-(iv), (c)-(ii), (d)-(iii)