

Q1 2021 (31 Aug Shift 2)

Given below are two statements : one is labelled as

Assertion (A) and the other is labelled as *Reason (R)*.

Assertion (A) : Lithium salts are hydrated.

Reason (R) : Lithium has higher polarising power than other alkali metal group members.

In the light of the above statements, choose the *most appropriate* answer from the options given below:

- (1) Both (A) and (R) are correct but (R) is NOT the correct explanation of (A).
- (2) (A) is correct but (R) is not correct.
- (3) (A) is not correct but (R) is correct.
- (4) Both (A) and (R) are correct and (R) is the correct explanation of (A).

Q2 2021 (31 Aug Shift 1)

The major component/ingredient of Portland Cement is :

- (1) tricalcium aluminate
- (2) tricalcium silicate
- (3) dicalcium aluminate
- (4) dicalcium silicate

Q3 2021 (27 Aug Shift 2)

The oxide that gives H_2O_2 most readily on treatment with H_2O is :

- (1) PbO_2
- (2) Na_2O_2
- (3) SnO_2
- (4) $\text{BaO}_2 \cdot 8\text{H}_2\text{O}$

Q4 2021 (27 Aug Shift 2)

Choose the correct statement from the following :

(1) The standard enthalpy of formation for alkali metal bromides becomes less negative on descending the group.

(2) The low solubility of CsI

CsI in water is due to its high lattice enthalpy.

(3) Among the alkali metal halides, LiF is least soluble in water.

(4) LiF has least negative standard enthalpy of formation among alkali metal fluorides.

Q5 2021 (27 Aug Shift 1)

The number of water molecules in gypsum, dead burnt plaster and plaster of paris, respectively are:

(1) 2,0 and 1

(2) 0.5,0 and 2

(3) 5,0 and 0.5

(4) 2,0 and 0.5

Q6 2021 (26 Aug Shift 2)

Given below are two statements : one is labelled as *Assertion (A)* and the other is labelled as *Reason (R)*.

Assertion (A) : Barium carbonate is insoluble in water and is highly stable.

Reason (R) : The thermal stability of the carbonates increases with increasing cationic size.

(1) Both (A) and (R) are true but (R) is the true explanation of (A)

(2) (A) is true but (R) is false

(3) Both (A) and (R) are true and (R) is not the true explanation of (A)

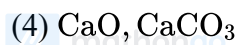
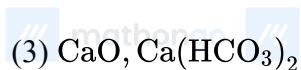
(4) (A) is false but (R) is true.

Q7 2021 (26 Aug Shift 1)

What are the products formed in sequence when excess of CO_2 is passed in slaked lime?

(1) $\text{Ca}(\text{HCO}_3)_2$, CaCO_3

(2) CaCO_3 , $\text{Ca}(\text{HCO}_3)_2$



Q1 (1)

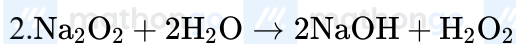
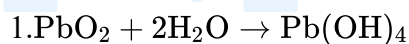
Lithium salts are hydrated due to high hydration energy of Li^+

Li^+ due to smallest size in IA group has highest polarizing power.

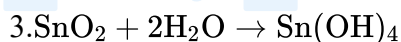
Q2 (2)

Major component of portland cement is "Tricalcium silicate" (51%, $3\text{CaO} \cdot \text{SiO}_2$)

Q3 (2)



this reaction is possible at room temperature



4. Acidified $\text{BaO}_2 \cdot 8\text{H}_2\text{O}$ gives H_2O_2 after evaporation.

Q4 (3)

(1) Standard enthalpy of formation for alkali metal bromides becomes more negative on descending down the group.

(2) In case of CsI , lattice energy is less, but Cs^+ is having less hydration enthalpy due to which it is less soluble in water.

(3) For alkali metal fluorides, the solubility in water increases from lithium to caesium. LiF is least soluble in water.

(4) Standard enthalpy of formation for LiF is most negative among alkali metal fluorides.

Q5 (4)

Gypsum - $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$

Plaster of Paris - $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$

Dead burnt plaster - CaSO_4

Q6 (1)

In IIA group on moving down the group size of cation increases and show thermal stability of carbonate increases.

Q7 (2)

