Q1 - 24 June - Shift 1

Which of the following statements are correct ?

(A) Both LiCl and $MgCl_2$ are soluble in ethanol.

(B) The oxides Li_2O and MgO combine with excess of oxygen to give superoxide.

(C) LiF is less soluble in water than other alkali metal fluorides.

(D) Li_2O is more soluble in water than other alkali metal oxides.

Choose the most appropriate answer from the options given below:

(A) (A) and (C) only (B) (A), (C) and (D) only

(C) (B) and (C) only (D) (A) and (C) only

Space for your notes:

Q2 - 24 June - Shift 2

Which one of the following compounds is used as a chemical in certain type of fire extinguishers?

(A) Baking Soda (B) Soda ash

(C) Washing Soda (D) Caustic Soda

Space for your notes:

Q3 - 24 June - Shift 2

In the flame test of a mixture of salts, a green flame with blue centre was observed. Which one of the following cations may be present?

(A) Cu^{2+} (B) Sr^{2+}

(C) Ba^{2+} (D) Ca^{2+}

Space for your notes:

Q4 - 25 June - Shift 1

Which one of the following alkaline earth metal ions has the highest ionic mobility in its aqueous solution?

(A) Be^{2+} (B) Mg^{2+}

(C) Ca^{2+} (D) Sr^{2+}

Space for your notes:

Q5 - 26 June - Shift 1

The correct order of melting point is :

(A) Be > Mg > Ca > Sr (B) Sr > Ca > Mg > Be

(C) Be > Ca > Mg > Sr (D) Be > Ca > Sr > Mg

Space for your notes:

Q6 - 26 June - Shift 2

s-block element which cannot be qualitatively confirmed by the flame test is

(1) Li (2) Na (3) Rb (4) Be

Space for your notes:

Q7 - 27 June - Shift 1

Addition of H_2SO_4 to BaO_2 produces:

(A) BaO, SO_2 and H_2O (B)$BaHSO_4$ and O_2

(C) $BaSO_4$, H_2 and O_2 (D) $BaSO_4$ and H_2O_2

Space for your notes:

Q8 - 27 June - Shift 1

$BeCl_2$ reacts with $LiAlH_4$ to give

(A) $Be + Li[AlCl_4] + H_2$

(B) $Be + AlH_3 + LiCl + HCl$

(C) $BeH_2 + LiCl + AlCl_3$

(D) $BeH_2 + Li[AlCl_4]$

Space for your notes:

Q9 - 27 June - Shift 2

BeO reacts with HF in presence of ammonia to give [A] which on thermal decomposition produces [B] and ammonium fluoride. Oxidation state of Be in [A] is_____

Space for your notes:

Q10 - 29 June - Shift 1

Match the **List-I** with **List- II.**

List-I (Metal)	List-II (Emitted light wavelength (nm))
(A) Li	(I) 670.8
(B) Na	(II) 589.2
(C) Rb	(III) 780.0
(D) Cs	(IV) 455.5

Choose the **most appropriate** answer from the options given below:

(A) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)

(B) (A)-(III), (B)-(II), (C)-(I), (D)-(IV)

(C) (A)-(III), (B)-(I), (C)-(II), (D)-(IV)

(D) (A)-(IV), (B)-(II), (C)-(I), (D)-(III)

Space for your notes:

Q11 - 29 June - Shift 2

Amongst baking soda, caustic soda and washing soda carbonate anion is present in :

(A) washing soda only.

(B) washing soda and caustic soda only.

(C) washing soda and baking soda only.

(D) baking soda, caustic soda and washing soda.

Space for your notes:

Answer Key

Q1 (A) **Q2** (A) **Q3** (A) **Q4** (D)

Q5 (D) **Q6** (D) **Q7** (D) **Q8** (C)

Q9 (2) **Q10** (A) **Q11** (A)

Q1 (A)

(A) Both LiCl and $MgCl_2$ are soluble in ethanol

(B) Li and Mg do not form superoxide

(C) LiF has high lattice energy

(D) Li_2O is least soluble in water than other alkali metal oxides

Q2 (A)

Sodium hydrogencarbonate (Baking soda), $NaHCO_3$ is used in the fire extinguishers.

Q3 (A)

Ion	Colour of the flame
(A) Cu^{+2}	green flame with blue centre
(B) Sr^{2+}	Crimson Red
(C) Ba^{2+}	Apple green

Q4 (D)

Highest ionic mobility corresponds to lowest extent of hydration and highest size of gaseous ion.

Hence Sr^{2+} has the highest ionic mobility in its aqueous solution

Q5 (D)

	M.P
Be	1560 K
Mg	924 K
Ca	1124 K
Sr	1062 K

Q6 (D)

refer NCERT (Page No. 300)

Q7 (D)

$BaO_2 + H_2SO_4 \rightarrow BaSO_4 + H_2O_2$

This is a common method to prepare hydrogen peroxide

Q8 (C)

$2BeCl_2 + LiAlH_4 \rightarrow 2\ BeH_2 + LiCl + AlCl_3$

This is the method to prepare BeH_2

Q9 (2)

$$BeO + HF + NH_3 \rightarrow \underset{[A]}{(NH_4)_2\ [BeF_4]} \xrightarrow{\Delta} \underset{[B]}{NH_4F + BeF_2}$$

Oxidation state of Be in A is (+2)

Q10 (A)

Metal	Li	Na	K	Rb	Cs
Colour	Crimson red	Yellow	Violet	Red Violet	Blue
λ/nm	670.8	589.2	766.5	780.0	455.5

Q11 (A)

Baking soda $\rightarrow NaHCO_3$

Washing soda $\rightarrow Na_2CO_3.10H_2O$

Caustic soda $\rightarrow NaOH$