

## Questions with Answer Keys

MathonGo

## Q1: 16 March (Shift 1) - Single Correct

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

Assertion A: Size of  $\text{Bk}^{3+}$  ion is less than  $\text{Np}^{3+}$  ion. Reason R : The above is a consequence of the lanthanoid contraction. In the light of the above statements, choose the correct answer from the options given below :

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

## Q2: 16 March (Shift 1) - Single Correct

Given below are two statements:

Statement I : The  $E^\circ$  value of  $\text{Ce}^{4+}/\text{Ce}^{3+}$  is  $+1.74\text{ V}$

Statement II : Ce is more stable in  $\text{Ce}^{4+}$  state than  $\text{Ce}^{3+}$  state.

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

- (1) Both statement I and statement II are correct
- (2) Statement I is incorrect but statement II is correct
- (3) Both statement I and statement II are incorrect
- (4) Statement I is correct but statement II is incorrect.

## Q3: 16 March (Shift 2) - Numerical

When 35 mL of 0.15M lead nitrate solution is mixed with 20 mL of 0.12M chromic sulphate solution,  $\times 10^{-5}$  moles of lead sulphate precipitate out. (Round off to the Nearest Integer).

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## Q4: 17 March (Shift 1) - Single Correct

Given below are two statements:

Statement I : Potassium permanganate on heating at 573 K forms potassium manganate.

Statement II : Both potassium permanganate and potassium manganate are tetrahedral and paramagnetic in nature.

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

- (1) Statement I is true but statement II is false
- (2) Both statement I and statement II are true
- (3) Statement I is false but statement II is true
- (4) Both statement I and statement II are false

## Q5: 17 March (Shift 2) - Single Correct

The common positive oxidation states for an element with atomic number 24, are :

- (1) +2 to +6
- (2) +1 and +3 to +6
- (3) +1 and +3
- (4) +1 to +6

## Q6: 17 March (Shift 2) - Numerical

On complete reaction of  $\text{FeCl}_3$  with oxalic acid in aqueous solution containing KOH, resulted in the formation of product A. The secondary valency of Fe in the product A is \_\_\_\_\_

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# Answer Key

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**Q1 (4)**

**Q2 (4)**

**Q3 (525)**

**Q4 (1)**

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**Q5 (1)**

**Q6 (6)**

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