

## Questions with Answer Keys

MathonGo

## Q1: 16 March (Shift 1) - Numerical

The equivalents of ethylene diamine required to replace the neutral ligands from the coordination sphere of the trans-complex of  $\text{CoCl}_3 \cdot 4\text{NH}_3$  is \_\_\_\_\_.

(Round off to the Nearest Integer).

## Q2: 16 March (Shift 2) - Numerical

$[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$  absorbs light of wavelength 498 nm during a d – d transition. The octahedral splitting energy for the above complex is \_\_\_\_\_  $\times 10^{-19}$  J. (Round off to the Nearest Integer).

$h = 6.626 \times 10^{-34} \text{Js}$ ;  $c = 3 \times 10^8 \text{ms}^{-1}$

## Q3: 17 March (Shift 2) - Single Correct

Match List-I with List-II :

| List-I   | List-II                       |
|--|-------------------------------|
| (a) $[\text{Co}(\text{NH}_3)_6][\text{Cr}(\text{CN})_6]$ | (i) Linkage isomerism         |
| (b) $[\text{Co}(\text{NH}_3)_3(\text{NO}_2)_3]$          | (ii) Solvate isomerism        |
| (c) $[\text{Cr}(\text{H}_2\text{O})_6]\text{Cl}_3$       | (iii) Co-ordination isomerism |
| (d) $\text{cis-}[\text{CrCl}_2(\text{ox})_2]^{2-}$       | (iv) Optical isomerism        |

Choose the correct answer from the options given below :

(1) (a) – (iii), (b) – (i), (c) – (ii), (d) – (iv)

(2) (a)-(iv), (b)-(ii), (c)-(iii), (d)-(i)

(3) (a)-(ii), (b)-(i), (c)-(iii), (d)-(iv)

(4) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)

## Q4: 18 March (Shift 1) - Single Correct

The correct structures of trans- $[\text{NiBr}_2(\text{PPh}_3)_2]$  and meridional- $[\text{Co}(\text{NH}_3)_3(\text{NO}_2)_3]$ , respectively, are



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**Answer Key**

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**Q1 (2)**

**Q2 (4)**

**Q3 (1)**

**Q4 (4)**

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**Q5 (3)**

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