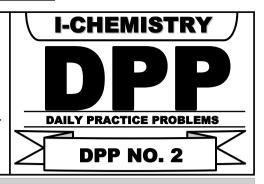
TARGET: NEET (UG) 2024

Course: SARANSH (Youtube Live CRASH COURSE)



Inorganic Chemistry: Coordination Compound

DPP No.: 2

- 1. A magnetic moment of 1.73 BM will be shown by one among the following:
 - (1) [Ni(CN)₄]²⁻
- (2) TiCl₄
- (3) [CoCl₆]⁴⁻
- (4) [Cu(NH₃)₄]²⁺
- 2. Among the following complexes the one which shows Zero crystal field stabilizations energy (CFSE)
 - (1) $[Nn(H_2O)_6]^{3+}$
- (2) $[Fe(H_2O)_6]^{3+}$
- (3) $[Co(H_2O)_6]^{2+}$
- (4) [Co(H₂O)₆]³⁺

- 3. Which of these statements about [Co(CN)₆]³⁻ is true?
 - (1) [Co(CN)₆]³- has four unpaired electrons and will be in a low-spin configuration.
 - (2) [Co(CN)₆]³⁻ has four unpaired electrons and will be in a high-spin configuration.
 - (3) [Co(CN)₆]³- has no unpaired electrons and will be in a high-spin configuration.
 - (4) [Co(CN₆)]³⁻ has no unpaired electrons and will be in a low-spin configuration.
- Jahn-Teller effect is not observed in high spin complexes of 4.
 - $(1) d^9$
- $(2) d^7$
- $(3) d^8$
- $(4) d^4$
- Correct increasing order for the wavelength of absorption in the visible region for the complexes of Co3+ 5. is:
 - (1) $[Co(en)_3]^{3+}$, $[Co(NH_3)_6]^{3+}$, $[Co(H_2O)_6]^{3+}$
- (2) $[Co(H_2O)_6]^{3+}$, $[Co(en)_3]^{3+}$, $[Co(NH_3)_6]^{3+}$
- (3) $[Co(H_2O)_6]^{3+}$, $[Co(NH_3)_6]^{3+}$, $[Co(en)_3]^{3+}$
- (4) $[Co(NH_3)_6]^{3+}$, $[Co(en)_3]^{3+}$, $[Co(H_2O)_6]^{3+}$
- What is the correct electronic configuration of the central atom in K₄[Fe(CN)₆] based on crystal field theor 6.
 - $(1) e^4 t_2^2$
- (2) $t_{2g}^4 e_g^2$
- (3) $t_{2g}^6 e_g^0$ (4) $e^3 t_2^3$
- Aluminium chloride in acidified aqueous solution forms a complex 'A', in which hybridisation state of Al is 7. 'B'. What are 'A' and 'B' respectively?
 - (1) $[Al(H_2O)_6]^{3+}$, sp $^3d^2$

(2) $[Al(H_2O)_4]^{3+}$, sp³

(3) $[Al(H_2O)_4]^{3+}$, dsp^2

(4) $[Al(H_2O)_6]^{3+}$, d^2sp^3



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8. The crystal field stabilization energy (CFSE) for [CoCl₆]⁴⁻ is 18000 cm⁻¹, the CFSE for [CoCl₄]²⁻ will be

(1) 6000 cm⁻¹

(2) 16000 cm⁻¹

(3) 18000 cm⁻¹

(4) 8000 cm⁻¹

9. Which of the following is the correct order of increasing filed strength of ligands to form coordination compounds?

(1) $SCN^- < F^- < CN^- < C_2O_4^{2-}$

(2) $F^- < SCN^- < C_2O_4^{2-} < CN^-$

(3) $CN^- < C_2O_4^{2-} < SCN^- < F^-$

(4) $SCN^- < F^- < C_2O_4^{2-} < CN^-$

10. Match List-II with List-II.

	List-I		List-II
(a)	[Fe(CN) ₆] ³⁻	(i)	5.92 BM
(b)	[Fe(H ₂ O) ₆] ³⁺	(ii)	0 BM
(c)	[Fe(CN) ₆] ⁴⁻	(iii)	4.90 BM
(d)	[Fe(H ₂ O) ₆] ²⁺	(iv)	1.73 BM

Choose the correct answer from the options given below.

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

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

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

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

Answer Key

(3)

1.

(4)

(2)

(4)

(1)

(1)

8. (4)

(4)

10.

3.

(3)