1) In an octahedral configuration, total how many p-orbitals available in the system?  
- 10  
- 12  
- 6  
- 18  

No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
12

2) Among all four triply degenerated irreducible representation p-bonds formed between  
- $T_{1g}$  
- $T_{1u}$  
- $T_{2g}$  
- $T_{2u}$  

No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
$T_{2g}$

3) The reactions of Ni(CO)$_4$ with the ligand L (L=PMe$_3$ or P(OMe)$_3$) yields Ni(CO)$_3$L. The reaction is  
- Dissociative  
- Associative  
- Interchange (Ia)  
- Interchange (Id)

No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
Dissociative

4) Which is HOMO for CO molecule?  
- $2s^*$  
- $2s^2p_x$  

2 points
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5) Among the following, which is not a p-acceptor ligand

- PR$_3$
- CO
- NR$_3$
- N$^-$

No, the answer is incorrect.
Score: 0
Accepted Answers: N$^-$

6) The rate of exchange of cyanide ligands in the complexes (i) [Ni(CN)$_4^{2-}$, (ii) [Mn(CN)$_6^{3-}$ and (iii) Cr(CN)$_6^{3-}$ by $^{14}$CN follow the order

- ii > i > iii
- iii > i > ii
- i > iii > ii
- i > ii > iii

No, the answer is incorrect.
Score: 0
Accepted Answers: i > ii > iii

7) For a p-donor ligand $\Delta_{O}$ considered between

- $t_{2g} \rightarrow e_g$
- $t_{2g} \rightarrow e_g^*$
- $t_{2g'} \rightarrow e_g$
- $t_{2g'} \rightarrow e_g^*$

No, the answer is incorrect.
Score: 0
Accepted Answers: $t_{2g'} \rightarrow e_g^*$

8) The CORRECT order of the rate of exchange of water molecules between the coordination sphere and the bulk is

- Cr$^{3+} < Al^{3+} < Cr^{2+} < Ni^{2+}$
- Cr$^{3+} < Al^{3+} < Ni^{2+} < Cr^{2+}$
- Cr$^{3+} < Ni^{2+} < Cr^{2+} < Al^{3+}$
- Cr$^{3+} < Cr^{2+} < Al^{3+} < Ni^{2+}$

No, the answer is incorrect.
Score: 0
Accepted Answers: Cr$^{3+} < Al^{3+} < Ni^{2+} < Cr^{2+}$

9) Choose the INCORRECT option

https://onlinecourses-archive.nptel.ac.in/noc17_cy10/unit?unit=49&assessment=87

2/3
increasing ligand field stabilization energy minimize inertness

+2 metal ions generally labile in nature

strong field \(d^6\) octahedral complexes are inert in nature

No, the answer is incorrect.
Score: 0

Accepted Answers:
increasing ligand field stabilization energy minimize inertness

The rate of exchange of \(\text{OH}_2\) present in the coordination sphere by \(^{18}\text{OH}_2\) of (i) \([\text{Cu(OH}_2]_{\text{6}}]^{2+}\) (ii) \([\text{Mn(OH}_2]_{\text{6}}]^{2+}\), (iii) \([\text{Fe(OH}_2]_{\text{6}}]^{2+}\), (iv) \([\text{Ni(OH}_2]_{\text{6}}]^{2+}\), follows an order

\(i > ii > iii > iv\)
\(i > iv > iii > ii\)
\(ii > iii > iv > i\)
\(iii > i > iv > ii\)

No, the answer is incorrect.
Score: 0

Accepted Answers:
\(i > ii > iii > iv\)