Assessment 10: Transition Metal Organometallic Chemistry: Principles To Applications

The due date for submitting this assignment has passed. **Due on 2018-04-04, 23:59 IST.**

Submitted assignment

1) How many $\nu_{\text{CO}}$ stretching band(s) is(are) observed in,

![Molecular Structure 1]

- 0
- 1
- 2
- 3

No, the answer is incorrect.

Score: 0

Accepted Answers:

2) How many $\nu_{\text{CO}}$ stretching band(s) is(are) observed in,

![Molecular Structure 2]

- 0
- 1
- 2
- 3

Score: 0

Accepted Answers:
3) How many $\nu_{\text{CO}}$ stretching band(s) is(are) observed in,

![Image of molecule with Me$_3$P, Ni, and CO ligands]

- 1
- 2
- 3
- 4

No, the answer is incorrect.
Score: 0
Accepted Answers: 2

4) How many $\nu_{\text{CO}}$ stretching band(s) is(are) observed in,

![Image of molecule with PMe$_3$, Cr, and CO ligands]

- 2
- 3
- 4
- 5

No, the answer is incorrect.
Score: 0
Accepted Answers: 3

5) Identify the correct statement(s),

- Ligands in mutual trans position compete for metal $d$ electrons
- Trans ligands weaken each other bonds with central metal atom
- Trans effect plays a significant role in oxidative addition reaction
- Trans effect plays a significant role in reductive elimination reaction

No, the answer is incorrect.
Score: 0
Accepted Answers: ligands in mutual trans position compete for metal $d$ electrons
trans ligands weaken each other bonds with central metal atom

6) Predict the product of the reaction,

\[
\begin{align*}
\text{Cr(CO)}_6 & \xrightarrow{\text{CH}_3\text{CN, } \Delta} \text{Cr(CO)}_5 \\
& \xrightarrow{\text{C}_7\text{H}_8} \text{Cr(CO)}_4 \\
& \xrightarrow{} \text{Cr(CO)}_3
\end{align*}
\]

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

7) Predict the product of the reaction,

\[
\begin{align*}
\text{Cr(CO)}_6 & \xrightarrow{\text{C}_8\text{H}_{14}, \text{hv}} \text{Cr(CO)}_5 \\
& \xrightarrow{} \text{Cr(CO)}_3
\end{align*}
\]
8) Carbonyl substitution reaction at 18 valence electron complex proceeds via, 

- dissociative mechanism
- associative mechanism
- ligand rearrangement
- isomerization

No, the answer is incorrect.
Score: 0

Accepted Answers:

9) Carbonyl substitution reaction at 17 valence electron complex proceeds via, 

- dissociative mechanism
- associative mechanism
- ligand rearrangement
- isomerization

No, the answer is incorrect.
Score: 0

Accepted Answers:

10) In the carbonyl substitution reactions of Cr(CO)₆ and Ni(CO)₄,

- Cr(CO)₆ reacts faster than Ni(CO)₄
- Ni(CO)₄ reacts faster than Cr(CO)₆
- the bond energy of D(Cr−CO) is more than D(Ni−CO)
the bond energy of D(Ni−CO) is more than D(Cr−CO)

No, the answer is incorrect.

Score: 0

Accepted Answers:
Ni(CO)₄ reacts faster than Cr(CO)₆
the bond energy of D(Cr−CO) is more than D(Ni−CO)