Assignment 4: Advanced Transition Metal Organometallic Chemistry

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment. Due on 2019-02-27, 23:59 IST.

1) Identify the incorrect statements in case of the nitrosyl ligands, 1 point

- NO$^+$ ion is isoelectronic with CO.
- NO$^-$ ion isoelectronic with O$_2$.
- 1e NO ligand forms linear structure MNO.
- NO is a 3e donor ligand.

No, the answer is incorrect.
Score: 0
Accepted Answers:
1e NO ligand forms linear structure MNO.

2) Identify the incorrect statement(s) in case of the terminal mode of binding, 1 point

- Carbonyl ligands can form bent MCO.
- Carbonyl ligands can form linear MCO.
- Nitrosyl ligands can form linear MNO.
- Nitrosyl ligands can form bent MNO.

No, the answer is incorrect.
Score: 0
Accepted Answers:
carbonyl ligands can form bent MCO.

c) Cyclopentadienyl metal hydride complexes are generally observed for, 1 point

- 3d metals.
- 4d metals.
- 5d metals.

No, the answer is incorrect.
Score: 0
Accepted Answers:
carbonyl ligands can form bent MCO.
4) $^1$H NMR spectrum of the following rhenium complex exhibits,
- one single peak for the metal-hydride (M-H) resonance at 60°C.
- six different peaks for the metal-hydride (M-H) resonance at -90°C.
- three different peaks for the metal-hydride (M-H) resonance at 60°C.
- one single peak for the metal-hydride (M-H) resonance at -90°C.

No, the answer is incorrect.
Score: 0
Accepted Answers:
- one single peak for the metal-hydride (M-H) resonance at 60°C.

5) Choose the correct statement from the list below regarding protonation of cyclopentadienyl metal hydride complex,
- the reaction is not feasible under any circumstances.
- the reaction is feasible, owing to the fact that cyclopentadienyl metal hydride complexes are very prone to protonation.
- the protonation occurs only in presence of an additional base.
- the reaction requires high temperature and pressure.

No, the answer is incorrect.
Score: 0
Accepted Answers:
- the reaction is feasible, owing to the fact that cyclopentadienyl metal hydride complexes are very prone to protonation.

6) The metal ion that can readily convert the CpMX$_n$ to [CpM(H$_2$O)$_n]^+$ is,
- Hg$^+$
- Au$^+$
- Cu$^+$
- Ag$^+$

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

7) The Schwartz's reagent is,

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

8) Predict the product of the reaction,
No, the answer is incorrect.  
Score: 0  
Acceptance Answers:  

9) Predict the product of the reaction,  
1 point

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

10) Predict the product of the reaction,  
1 point

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