



## Unit 7 - Week 5

## Course outline

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Assignment Solution

## Assignment 5

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

Due on 2019-09-04, 23:59 IST.

 1) The number of molecules generated between the reaction of  $[M(H_2O)_6]^{2+}$  and EDTA 1 point

- A. 2  
B. 6  
C. 7  
D. 3

- A  
 B  
 C  
 D

No, the answer is incorrect.

Score: 0

Accepted Answers:

C

 2) The products formed between the reaction of  $Fe^{3+}$  and  $Au^+$  with  $NCS^-$  are respectively, 1 point

- A.  $[Fe(NCS)_6]^{3-}$  and  $[Au(NCS)_2]^-$   
B.  $[Fe(NCS)_6]^{3-}$  and  $[Au(SCN)_2]^-$   
C.  $[Fe(SCN)_3]$  and  $[Au(SCN)_2]^-$   
D.  $[Fe(SCN)_6]^{3-}$  and  $[Au(NCS)]$

- A  
 B  
 C  
 D

No, the answer is incorrect.

Score: 0

Accepted Answers:

B

 3) Which of the following is not used in chelation therapy for arsenic poisoning in body? 1 point

- A. Dimercapto-propane sulfonate  
B. Dimercaprol  
C. Ethylenediamine tetraacetic acid  
D. Dimercaptosuccinic acid

- A  
 B  
 C  
 D

No, the answer is incorrect.

Score: 0

Accepted Answers:

C

 4) In the hard-hard / soft-soft combination of acids and bases, the suitable orbital combination is 1 point

- A. high energy HOMO of base react with low energy LUMO of acid  
B. low energy HOMO of acid react with high energy LUMO of base  
C. low energy LUMO of base react with high energy HOMO of acid  
D. low energy HOMO of base react with high energy LUMO of acid

- A  
 B  
 C  
 D

No, the answer is incorrect.

Score: 0

Accepted Answers:

D

 5) The hybridization of metal atoms and the magnetic properties of  $[Co(CN)_6]^{3-}$  and  $[CoF_6]^{3-}$  are respectively, 1 point

- A.  $d^2sp^3$  diamagnetic,  $sp^3d^2$  paramagnetic  
B.  $d^2sp^3$  paramagnetic,  $d^3sp^2$  diamagnetic  
C.  $sp^3d^2$  paramagnetic,  $d^2sp^3$  diamagnetic  
D.  $sp^3d^2$  paramagnetic,  $sp^2d^3$  paramagnetic

- A  
 B  
 C  
 D

No, the answer is incorrect.

Score: 0

Accepted Answers:

A

 6) Predict the structures and hybridization state of metal ions in  $[Zn(OH)_4]^{2-}$  and  $[Ni(CN)_4]^{2-}$  complexes 1 point

- A. square planar,  $dsp^2$ ; tetrahedral,  $sp^3$   
B. tetrahedral,  $sp^3$ ; tetrahedral,  $sp^3$   
C. square planar,  $dsp^2$ ; square planar,  $dsp^2$   
D. tetrahedral,  $sp^3$ ; square planar,  $dsp^2$

- A  
 B  
 C  
 D

No, the answer is incorrect.

Score: 0

Accepted Answers:

D

 7) Which of the following statement is not correct in VBT approach? 1 point

- A. bonding in complexes as a result of electrostatic interactions  
B. this theory is unable to adequately explain the magnetic properties of complexes  
C. cannot account for color of the complexes  
D. all d orbitals are equal in energy

- A  
 B  
 C  
 D

No, the answer is incorrect.

Score: 0

Accepted Answers:

A

 8) Which of valence d orbitals of the central metal ion in an octahedral ligand field are raised in energy? 1 point

- A.  $d_{xy}$  and  $d_{z^2}$   
B.  $d_{x^2-y^2}$  and  $d_{z^2}$   
C.  $d_{xy}$ ,  $d_{xz}$  and  $d_{yz}$   
D.  $d_{xz}$  and  $d_{yz}$

- A  
 B  
 C  
 D

No, the answer is incorrect.

Score: 0

Accepted Answers:

B

 9) The hybridization for trigonal bipyramidal and octahedral are 1 point

- A.  $dsp^2$  and  $sp^2d^2$   
B.  $sp^3d$  and  $d^2sp^2$   
C.  $dsp^3$  and  $d^2sp^3$   
D.  $sp^3d^2$  and  $d^3sp^3$

- A  
 B  
 C  
 D

No, the answer is incorrect.

Score: 0

Accepted Answers:

C

 10) 1 mol of  $PtCl_4 \cdot 5NH_3$  react with excess  $AgNO_3$  solution to give 3 mol of  $AgCl$ . The correct formula of the complex is 1 point

- A.  $[PtCl_2(NH_3)_4] \cdot Cl_2 \cdot NH_3$   
B.  $[PtCl_3(NH_3)_3] \cdot Cl \cdot 2NH_3$   
C.  $[PtCl(NH_3)_5] \cdot Cl_3$   
D.  $[PtCl_4(NH_3)_2] \cdot 3NH_3$

- A  
 B  
 C  
 D

No, the answer is incorrect.

Score: 0

Accepted Answers:

C

 11) Which of the following octahedral complex is diamagnetic? 1 point

- A.  $[Fe(CN)_6]^{3-}$   
B.  $[Co(NH_3)_6]^{3+}$   
C.  $[Ni(H_2O)_6]^{2+}$   
D.  $[CoF_6]^{3-}$

- A  
 B  
 C  
 D

No, the answer is incorrect.

Score: 0

Accepted Answers:

B

 12) On the basis of Crystal field splitting theory, the electronic configuration of  $[FeF_6]^{3-}$  is 1 point

- A.  $t_{2g}^3 e_g^2$   
B.  $t_{2g}^5 e_g^0$   
C.  $t_{2g}^2 e_g^3$   
D.  $t_{2g}^4 e_g^1$

- A  
 B  
 C  
 D

No, the answer is incorrect.

Score: 0

Accepted Answers:

A