

Unit 6 - Week 4

Course outline

How does an NPTEL online course work?

Week 0

Week 1

Week 2

Week 3

Week 4

Lecture 15 : Spectroscopic Term Symbol

Lecture 16 : Magnetic States of Matter: Paramagnetic, Ferro and Antiferromagnetic

Lecture 17 : Introduction to Bio-Inorganic Chemistry

Lecture 18 : Metalloprotein (Hb, Mb, Transferrin) and Metalloenzyme (Plastocyanin)

Lecture 19 : Oxygen Transportation Mechanism

Download Videos

Weekly Feedback

Quiz : Week 4 : Assignment 4

Text Transcripts

Week 4 : Assignment 4

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

Due on 2020-02-26, 23:59 IST.

1) The lowest energy term for the d^6 configuration is

1 point

- 2D
 5D
 1P
 1D

No, the answer is incorrect.

Score: 0

Accepted Answers:

3D

2) The magnetic moment of an octahedral $Co(II)$ complex is 4.0 B.M. The d-electron configuration of $Co(II)$ is

1 point

- $t_{2g}^4 e_g^3$
 $t_{2g}^5 e_g^2$
 $t_{2g}^6 e_g^1$
 $t_{2g}^3 e_g^4$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$t_{2g}^3 e_g^2$

3) What is the atomic term symbol for helium atom with electronic configuration $1s^2$?

1 point

- $^2S_{1/2}$
 1P_0
 1S_0
 1S_1

No, the answer is incorrect.

Score: 0

Accepted Answers:

1S_0

4) For the electronic configuration $1s^2 2s^2 2p^4$, two of the possible term symbols are 1S and 3P . The remaining term is

1 point

- 1D
 1F
 3D
 3F

No, the answer is incorrect.

Score: 0

Accepted Answers:

1D

5) Which statement is incorrect about myoglobin?

1 point

- myoglobin transports oxygen
 the five-coordinate ferrous deoxy form is high spin
 the six coordinate oxy form is low spin
 myoglobin contains 154 amino acids

No, the answer is incorrect.

Score: 0

Accepted Answers:

myoglobin transports oxygen

6) In biological systems, the metal ions involved in electron transport are

1 point

- Na^+ and K^+
 Zn^{2+} and Mg^{2+}
 Ca^{2+} and Mg^{2+}
 Cu^{2+} and Fe^{3+}

No, the answer is incorrect.

Score: 0

Accepted Answers:

Cu^{2+} and Fe^{3+}

7) Oxy myoglobin $Mb(O_2)$ and oxyhemoglobin $Hb(O_2)_4$, respectively are

1 point

- paramagnetic and paramagnetic
 diamagnetic and paramagnetic
 diamagnetic and diamagnetic
 paramagnetic and diamagnetic

No, the answer is incorrect.

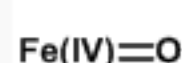
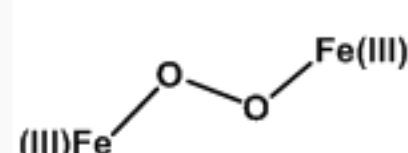
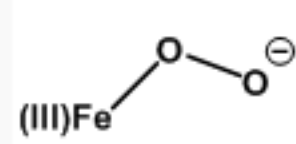
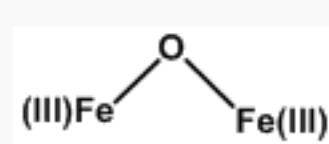
Score: 0

Accepted Answers:

diamagnetic and diamagnetic

8) In absence of bound globin chain, heme group on exposure to O_2 gives the iron-oxygen species

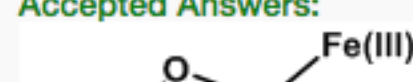
1 point



No, the answer is incorrect.

Score: 0

Accepted Answers:



9) The $Fe-N_{porphyrin}$ bond distances in the deoxy and oxy-hemoglobin, respectively are

1 point

- ~ 2.1 and 2.0 \AA
 ~ 2.0 and 2.0 \AA
 ~ 2.2 and 2.3 \AA
 ~ 2.3 and 2.5 \AA

No, the answer is incorrect.

Score: 0

Accepted Answers:

~ 2.1 and 2.0 \AA

10) The zero magnetic moment of octahedral $[K_2NiF_6]$ is due to

1 point

- low spin $d^6 Ni(IV)$ complex
 high spin $d^6 Ni(IV)$ complex
 low spin $d^8 Ni(II)$ complex
 high spin $d^8 Ni(II)$ complex

No, the answer is incorrect.

Score: 0

Accepted Answers:

low spin $d^6 Ni(IV)$ complex