

Choose the correct answer from a, b, c Or d [5 marks]

1-What the effect of temperature on exothermic reaction:

- (a) Increase the concentration of the resultants in the equilibrium mixture, besides shortening the necessary time to reach equilibrium.
- (b) Decrease the concentration of the resultants in the equilibrium mixture, besides shortening the necessary time to reach equilibrium.
- (c) Decrease the concentration of the resultants in the equilibrium mixture, besides extended the necessary time to reach equilibrium.
- (d) None of these.

2-If catalyst accelerates both the forward and backward reactions to the same extent;

- (a) The net result is to shorten the necessary time to reach the equilibrium.
- (b) The net result is to extend the necessary time to reach the equilibrium.
- (c) The net result is no effect on the necessary time to reach the equilibrium.
- (d) The net result is little time to reach the equilibrium.

3-The Relation between K_p and K_c is:

- (a) $K_p = K_c (RT)^{(g+h)-(a+b)}$
- (b) $K_p = K_c (RT)^{(g+h)-(a+b)}$
- (c) $K_p = K_c (RT)^{(g+h)-(a-b)}$
- (d) $K_c = K_b (RT)^{(g+h)-(a+b)}$

4-When solid NH_4Cl is added to NH_4OH solution, the equilibrium shifts to the left:

- (a) The equilibrium concentration of OH^- decreases.
- (b) The equilibrium concentration of OH^- increases.
- (c) The equilibrium concentration of OH^- unaffected.
- (d) The equilibrium concentration of OH^- neutralized.

5-In Ostwald Law of Dilution, "the dissociation degree, α ,"

- (a) Decreases with dilution.
- (b) Increases with dilution
- (c) Unaffected with dilution.
- (d) Increases with Concentration.

6-A reaction is at equilibrium. What happens to the value of the equilibrium constant if an additional quantity of reactant is added to the reaction mixture.

- (a) The equilibrium constant is shifted to favour production of more reactant.
- (b) The equilibrium constant is shifted to favour production of more products.
- (c) The equilibrium constant is increased.
- (d) The equilibrium constant stays the same.

7- The bond order for O_2^+ = a)3 b) 2.5 c) 1.5 d) 1

8- Total number of high electron density regions around the central atom for H_2O equal to a) 4 b) 3 c) 2 d) 5.

9- Each treble bond is counted as one region of high electron density.

10-Hyberdization for H_2S is a) sp^3 b) sp^2 c) sp^3 d) sp

Read and put True(V) or False (X) [5marks]

- 1- Molecular geometry for CO_2 is nonlinear with net
- 2- Electronic geometry for molecules with formula AB_3U is tetrahedral.
- 3- Electronic geometry equal to molecular geometry for POCl_3 molecule.
- 4- Molecular geometry for sp^2 hybridization molecules is trigonal planar.
- 5- V.B.T. predicts sp^2 hybridization at one oxygen atom for O_2 molecule and diamagnetic.
- 6- The energy of nonbonding orbitals higher than anti bonding molecular orbitals.
- 7- All hetero triatomic molecules in linear structure have net dipole.
- 8- Repulsion force between bonded pair and lone pair of electrons is higher than that between lone pair and lone pair.
- 9- Each lone pair of electron on central atom is counted as one region of high electron density.
- 10- The SO_2 molecule has bent shape.

قال
صلى الله
عليه
وسلم:

"أفضل الذكر لا إله إلا الله"

Choose the correct answer from A, B, C Or D [30 mark]

- 1) The number of regions of high electron density around A for AB_2U_2 molecule is: A) 2 B) 3 C) 4 D) 5
- 2) CCl_4 molecule is;
A) Non-linear B) linear C) trigonal planar D) tetrahedral
- 3) One of the following molecules has trigonal bipyramidal geometry.
A) PF_5 B) NH_3 C) CH_3Cl D) NO_3^-
(Cl = 17, O = 8, P = 15, N = 7, B = 5)
- 4) One of these molecules has a linear geometry; (S = 16 C=12
O=16 H=1) A) SO_2 , B) CO_2 , C) H_2O , D) H_2S
- 5) The shape of $POCl_3$ is;
A) Trigonal planar B) Trigonal bipyramid
C) Tetrahedral D) Square planar
- 6) The total number of electrons in bi molecular orbitals for O_2 is:
A) 3 B) 5 C) 4 D) 6
- 7) The angle H – S – H in H_2S is,
A) 120° B) 100° C) 110° D) Around 92°
- 8) Which one of the following molecules is nonpolar.
A) H_2O , B) SO_2 , C) CO_2 D) $BeClF$
- 9) The hybridization of sulphur atom in SO_2 ;
A) sp^3 , B) sp^3d , C) sp^2 D) sp
- 10) The bond order in O_2^+ is;
A) 2, B) 3, C) 2.5 D) 1.5
- 11- Hybridization for NH_3 is : A) sp^3 B) sp^2 C) sp D) not allowed
- 12- The number of kinds of angles in PCl_3O is
A) 5 B) 6 C) 2 D) 1
- 13- Paramagnetic behavior is caused by the presence of :
A) Paired protons b) Paired electrons
C) One electrons D) One neutron
- 14- The total number of electrons in sigma bonding orbitals for peroxide molecule is : A) 1 B) zero C) 2 D) 6
- 15- The angle value H-N-H in NH_3 is: A) 180° B) 90.5° C) 92° D) around 107°

Read and put True(✓) or False(X) [30 mark]

- 1- Electronic geometry for molecules with formula AB_3 is tetrahedral.
- 2- Water molecule is polar, and has some ionic bond character
3. The angle O – C – O in CO_2 smaller than angle O – S – O in SO_2
- 4- The energy of nonbonding orbitals higher than anti bonding molecular orbitals.
- 5- Repulsion force between lone pair and lone pair is higher than that between bonded pair and lone pair of electrons.

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