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| Question | Answer1 | Answer2 | Answer3 | Answer4 |
| VBT can explain \_\_\_\_\_\_\_ of transition metal complexes . | Magnetic property | Spectral property | Reaction mechanism | Temperature dependent paramagnetism |
| In octahedral complex, the metal orbitals directly pointed towards the ligand will experience ----. | Less repulsion | More attraction | More repulsion | Less attraction |
| The symbol t refers to \_\_\_\_\_of orbitals | Single degeneracy | Double degeneracy | Triple degeneracy | Tetra degeneracy |
| The difference in energy between two sets of d- orbitals in octahedral complexes is denoted by---- | ∆t p | ∆t | ∆sp | ∆o |
| In octahedral field, d orbitals split as | t2g and e g | t1g  ande g | t2u  and e g | t1u e g |
| The complex [ Fe F6 ] -3  will be \_\_\_\_ in nature. | Strongly Paramagnetic | Diamagnetic | Ferromagnetic | Weakly paramagnetic |
| The d-orbitals undergo splitting to a\_\_\_\_\_\_ in presence of weak field ligands . | Greater extent | Lesser extent | Equal extent | Do not split |
| Which of the following is weak field ligand ? | F- | CN- | CO | en |
| The colour of [ Ti(H2O)6 ]+3 is due to \_\_\_\_\_transition. | Metal to Ligand Charge Transfer | Ligand to Metal Charge Transfer | d-d | f-f |
| Electron – electron repulsions in the \_\_\_\_\_\_\_\_ complex will be the least.. | Bromo | Iodo | Aqua | ammine |
| The nephelauxetic effect is minimum in \_\_\_\_complexes. | Fluoro | Chloro | Bromo | Iodo |
| The order of increasing energy of d orbital in square planar complex is \_\_\_\_\_\_\_\_\_ | dxz=dyz< dz2<dxy<dx2-y2 | dz2<  dx2-y2=dxy  <dxz=dyz | dxz=dyz>  dxy=dx2-y2<dz2 | dxz=dyz<  dxy=dx2-y2>dz2 |
| The magnetic moment of [ Fe (H2O)6]+3  complex is \_\_\_\_\_ | 1.73 B.M | 2.82 B. M | 5.9 B.M | 4.89 B.M |
| Molecular orbitals are formed by combining atomic orbitals which have \_\_\_\_\_\_\_. | disimilar energies | different symmetry along the bond axis | electrons with opposite spin | electrons with same spin |
| According to group theory, s orbital is assigned \_\_\_\_\_\_\_\_ symmetry symbol. | a1g | t1g | t2g | eg |
| In a π bonded octahedral complex, vacant ligand π orbitals are at a \_\_\_\_\_\_\_ energy compared to metal t2g orbitals. | higher | lower | same | equal |
| Among the following complexes \_\_\_\_\_\_\_\_\_\_ is more stable  ( K values for hydroxo complexes are given below) | LiKLiOH = 2 | KMgOH+ = 102 | K YOH2+ = 107 | K ThOH3+ = 1010 |
| The formation of the complex MLn may also be expressed by the following steps and equilibrium constants.  M + L ML,  =  M +2L ML2, 2 =  Thus M + nLMLn, n =  The equilibrium constants, 1, 2, ........n are called \_\_\_\_\_\_\_\_\_\_ . | Instability constants | stepwise stability constants | overall formation constants | Stepwise dissociation constant |
| Dissociation constant of [Ag(NH3)2]+ = 6 x 10 -8;  [Cd (NH3)4]+ 2 = 2.5 x 10 -7; Which complex among the two is more stable? | [Cd (NH3)4]+ 2 | [Ag(NH3)2]+ | Both 1 and 2 | Either Cd (NH3)4]+ 2 or  [Ag(NH3)2]+depending on temperature |
| In complex compounds , metal acts as a / an \_\_\_\_\_\_\_\_\_ ,  . | electrophile | nucleophile | electron donor | Electron acceptor |
| Complexes with one or more vacant inner \_\_\_\_\_\_\_\_\_\_ orbitals are labile. | s | f | p | d |
| Acid hydrolysis takes place at a pH \_\_\_\_\_\_ | less than 3 | equal to 5 | equal to 7 | greater than 10 |
| Intra ligand transitions involve the transition of electrons from one \_\_\_\_\_\_\_\_\_\_ | ligand orbital to another ligand orbital | ligand orbital to another metal orbital | metal orbital to another metal orbital | Metal to ligand orbital |
| \_\_\_\_\_\_\_\_\_\_\_transitions produce the most intense bands. | Intra ligand | f— d | Charge transfer | d-d |
| The number of unpaired spins for a Quartet state is \_\_\_\_\_\_\_ . | 3 | 4 | 5 | 2 |
| \_\_\_\_\_\_\_\_\_\_is an example of electron deficient organometallic compound. | Hg(CH3)2 | Be 2(CH3)6 | Mn2(CO)10 | CH3CH2MgX |
| Dimethyl Magnesium assumes \_\_\_\_\_\_structure. | Dimeric | Trimeric | Polymeric | Tetrameric |
| Which of the following organometallic compounds are most stable towards oxygen ?. | Trialkyls of Group 13 | Tetra alkyls of Group 14 | Trialkyls of Group 15 | Dialkyls of Group 16 |
| The metathesis reaction,  M R + E X MX + ER  will take place when \_\_\_\_\_\_\_\_. | M is less electro-negative than E | M is more electronegative than E | M and E have same electro-negativity | Does not depend on electronegativity values of M and E |
| Sandwich compounds are ……………. | Regular aliphatic compounds | Organometallic compounds | Ionic  compounds | Electron deficient compounds |
| Ni (CO)4 is a …………. | metallocene | sandwich compound | aromatic compound | organometallic compound |
| Ferrocene undergoes most of the ………… | nucleophilic reactions | electrophilic reactions | oxidation reactions | polymerisation reactions |
| The structure of Ferrocene was confirmed by …………. | NMR spectra | X-ray analysis | UV studies | IR spectra |
| Catalyst/s that is/are present in the same phase as  that of the reagent is/are……. | heterogeneous catalyst | homogeneous catalyst | Both homogenous and heterogenous catalyst | Either homogenous or heterogenous  Catalyst. |
| Catalysts are …………. | Solids | Liquids | Gases | Any of these |
| Generally, only one type of active site is available in the case of………. | Homogeneous catalysts | Heterogeneous catalysts | Both 1 and 2 | Autocatalysis |
| Catalyst can improve ……………. | productive capacity | quality of the products | Selectivity | all of these |
| A metal never found in the free state is | Au | Ag | Cu | Fe |
| Blast furnace is employed in the smelting of oxides orewith coke and flux in the metallurgy of | iron | copper | Lead | all the above |
| In the blast furnace, maximum temperature is in | zone of fusion | Zone of combustion | zone of slag combustion | zone of reduction. |
| The highest temperature is achieved in which type of furnace. | Blast | Reverberatory | Electric | Muffle |
| Which of the following outer electronic configuration represents argon -------------- | ns2 | ns2np6 | ns2np5 | ns2np4 |
| XeF4 and XeF6 are expected to be-------------- | Oxidising | Reducing | Unreactive | Strongly basic |
| Argon was discovered by------------- | Rayleigh | Frankland&Lockyer | Jansen | Ramsay |
| In XeF2 XeF4 and XeF6, the number of lone pairs on Xe are ------,------ and ------- respectively: | 2,3,1 | 1,2,3 | 3,2,1 | 4,1,2 |
| Most abundant elements in the living bodies are | Si | Ca | Ni | F |
| Excess of Manganese leads to ----------- | Lung disease | Anaemia | Goiter | Psychiatric disorder |
| Deficiency of zinc causes ------------ | Inhibited growth | Anemia | Goiter | Lung disease |
| Na +, K+ ion pump was discovered by------------ | Newton | Zens Christies skou | Einstein | Faraday. |