

T.Y.B.Sc CH-502

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T.Y. B.Sc Internal Exam CH-501

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Exam Section



All Questions are compulsory, Each Question Carry 2 Marks

Q.1) The order of repulsion in multiple bonds is___ *

- ☐ Double bond>Triple bond>Single bond
- ☐ Triple bond>Double bond>Single bond
- ☐ Single bond>double bond >triple bond
- ☐ None of these

Q.2) How many loan pair present in Dichloriodate(I)anion.? *

- ☐ 3
- ☐ 2
- ☐ 1
- ☐ 4

Q.3) The F-Br-F bond angle in BrF₃ is___ *

- ☐ 85.6°
- ☐ 86.7°



86.5°

Q.4) Primary valence satisfy____ *

- ☐ Negative ion
- ☐ Negative ion or neutral molecule
- ☐ Both a and b
- ☐ None of these

Q.5) Complex containing same number of water molecules as water molecules coordinated to central metal ion wholly or partly are called____ *

- ☐ Hydrate isomer
- ☐ Solvate isomer
- ☐ Ionisation isomer
- ☐ Both a and b

Q.6) The EAN of Ni in $[\text{Ni}(\text{CO})_4]$ ____ *

- ☐ 86
- ☐ 36
- ☐ 35
- ☐ 84

Q.7) Which one of the following show geometrical isomerism? *



- ☐ Octahedral complexes
- ☐ Tetrahedral complexes
- ☐ Both a and b

Q.8) The number of geometrical isomer shown by the square planar complexes $[Ma_2b_2cd]$ *

- ☐ 4 isomer
- ☐ 3 isomer
- ☐ 2 isomer
- ☐ 5 isome

Q.9) Complexes with Co-ordination number 4 have ____ *

- ☐ POnly square planar geometry
- ☐ Tetrahedral geometry
- ☐ Octahedral geometry
- ☐ Both a and b

Q.10) In VBT, bond formation between metal and ligand are *

- ☐ Covalent bond
- ☐ Intermediate bonding
- ☐ Ionic bonding
- ☐ None of these



Q.11) The splitting of five degenerate d- orbital of the free metal ion under the influence of approach ligand into two or more groups having different energy is called ____? *

- ☐ Crystal field splitting
- ☐ Crystal field theory
- ☐ Crystal field stabilisation energy
- ☐ None of these

Q.12) Degenerate orbital have__ *

- ☐ Matching geometry
- ☐ Different energy
- ☐ Matching symmetry
- ☐ Similar energy

Q.13) The decrease in energy caused by the splitting of degenerate d-orbital and their occupancy by electron is called ____ *

- ☐ CFSE
- ☐ Crystal field splitting
- ☐ Spectrochemical series
- ☐ Four

Q.14) In octahedral ligand field ____ *

- ☐ the t_{2g} orbital have higher energy than e_g orbital



☐ Both eg and t2g orbital have similar energy

☐ The energies of t2g and eg orbital can not be predicted

Q.15) The complexes which have smaller degree crystal field splitting are called____..... *

☐ Strong field complex

☐ Weak field complexes

☐ Both a and b

☐ None of these

Q.16) The magnitude of crystal field splitting ($10Dq$)____ Required to answer. Single choice. *

☐ Increase with decrease in oxidation state of metal

☐ Increase with increase in size of d-orbital

☐ Increase with decrease in size of d-orbital

☐ None of above

Q.17) MOT consider the bonding between metal and ligand is ____ *

☐ Purely ionic

☐ Intermediate bonding

☐ Purely covalent

☐ All of these



- ☐ s,p,d orbital
- ☐ s.p orbital
- ☐ d orbital only
- ☐ none of these

Q.19) The distribution of electron in splitted d-orbital do not obey Hund's rule when ____ *

- ☐ $10 Dq < \text{pairing energy}$
- ☐ $10 Dq > \text{pairing energy}$
- ☐ $10 Dq$ is zero
- ☐ None of the above

Q.20) The symmetry symbol used for dxy,dyz,dzx metal orbital in octahedral complexes *

- ☐ t_{2g}
- ☐ a_{1g}
- ☐ e_g
- ☐ t_{1u}

