	Inorganic Chemistry SEM VI sample MCQ's
1	VBT can explain _____ of transition metal complexes . Magnetic property Spectral property Reaction mechanism Temperature dependent paramagnetism
2	In octahedral complex, the metal orbitals directly pointed towards the ligand will experience ----. Less repulsion More attraction More repulsion Less attraction
3	The symbol t refers to _____of orbitals Single degeneracy Double degeneracy Triple degeneracy Tetra degeneracy
4	The difference in energy between two sets of d- orbitals in octahedral complexes is denoted by---- $\Delta_{t\,p}$ Δ_t Δ_{sp} Δ_o
5	In octahedral field, d orbitals split as t_{2g} and e_g t_{1g} ande $_g$ t_{2u} and e_g t_{1u} e_g
6	The complex [Fe F_6] $^{-3}$ will be ____ in nature. Strongly Paramagnetic Diamagnetic Ferromagnetic Weakly paramagnetic
7	The d-orbitals undergo splitting to a_____ in presence of weak field ligands . Greater extent Lesser extent

	Equal extent Do not split
8	Which of the following is weak field ligand ? F^- CN^- CO en
9	The colour of [$Ti(H_2O)_6$]$^{+3}$ is due to _____transition. Metal to Ligand Charge Transfer Ligand to Metal Charge Transfer d-d f-f
10	Electron – electron repulsions in the _____ complex will be the least. Bromo Iodo Aqua ammine
11	The nephelauxetic effect is minimum in ____complexes. Fluoro Chloro Bromo Iodo
12	The order of increasing energy of d orbital in square planar complex is _____ dxz=dyz< dz^2<dxy<dx^2-y^2 dz^2< dx^2-y^2=dxy <dxz=dyz dxz=dyz> dxy=dx^2-y^2<dz^2 dxz=dyz< dxy=dx^2-y^2>dz^2
13	The magnetic moment of [Fe $(H_2O)_6$]$^{+3}$ complex is _____ 1.73 B.M 2.82 B. M 5.9 B.M 4.89 B.M

14	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
15	According to group theory, s orbital is assigned _____ symmetry symbol. a_{1g} t_{1g} t_{2g} e_g
16	In a π bonded octahedral complex, vacant ligand π orbitals are at a _____ energy compared to metal t_2g orbitals. higher lower same equal
17	Among the following complexes _____ is more stable (K values for hydroxo complexes are given below) $K_{LiOH} = 2$ $K_{MgOH^+} = 10^2$ $K_{YOH^{2+}} = 10^7$ $K_{ThOH^{3+}} = 10^{10}$
18	The formation of the complex MLn may also be expressed by the following steps and equilibrium constants. $M + L \xrightarrow{B_1} ML, \quad \beta = \frac{(ML)}{[M][L]}$ $M + 2L \xrightarrow{B_2} ML_2, \quad \beta_2 = \frac{(ML_2)}{[M][L]^2}$ Thus $M + nL \xrightarrow{B_n} MLn, \quad \beta_n = \frac{(MLn)}{[M][L]^n}$ The equilibrium constants, $\beta_1, \beta_2, \ldots\ldots \beta_n$ are called _____ . Instability constants stepwise stability constants overall formation constants Stepwise dissociation constant

19	Dissociation constant of $[Ag(NH_3)_2]^+ = 6 \times 10^{-8}$; $[Cd(NH_3)_4]^{+2} = 2.5 \times 10^{-7}$; Which complex among the two is more stable? $[Cd(NH_3)_4]^{+2}$ $[Ag(NH_3)_2]^+$ Both 1 and 2 Either $Cd(NH_3)_4]^{+2}$ or $[Ag(NH_3)_2]^+$depending on temperature
20	In complex compounds , metal acts as a / an _____ , . electrophile nucleophile electron donor Electron acceptor
21	Complexes with one or more vacant inner _____ orbitals are labile. s f p d
22	Acid hydrolysis takes place at a p H _____ less than 3 equal to 5 equal to 7 greater than 10
23	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
24	_____transitions produce the most intense bands. Intra ligand f— d Charge transfer d-d
25	The number of unpaired spins for a Quartet state is _____ . 3 4 5 2
26	_____is an example of electron deficient organometallic compound.

	$Hg(CH_3)_2$ $Be_2(CH_3)_6$ $Mn_2(CO)_{10}$ CH_3CH_2MgX
27	Dimethyl Magnesium assumes _____structure. Dimeric Trimeric Polymeric Tetrameric
28	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
29	The metathesis reaction, M R + E X $\longrightarrow$ 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
30	Sandwich compounds are ……. Regular aliphatic compounds Organometallic compounds Ionic compounds Electron deficient compounds
31	$Ni(CO)_4$ is a ……. metallocene sandwich compound aromatic compound organometallic compound
32	Ferrocene undergoes most of the ……

	nucleophilic reactions electrophilic reactions oxidation reactions polymerisation reactions
33	The structure of Ferrocene was confirmed by ……. NMR spectra X-ray analysis UV studies IR spectra
34	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.
35	Catalysts are ……. Solids Liquids Gases Any of these
36	Generally, only one type of active site is available in the case of……. Homogeneous catalysts Heterogeneous catalysts Both 1 and 2 Autocatalysis
37	Catalyst can improve ……. productive capacity quality of the products Selectivity all of these
38	A metal never found in the free state is ..... Au

	Ag Cu Fe
39	Blast furnace is employed in the smelting of oxides orewith coke and flux in the metallurgy of ..... iron copper Lead all the above
40	In the blast furnace, maximum temperature is in..... zone of fusion Zone of combustion zone of slag combustion zone of reduction.
41	The highest temperature is achieved in which type of furnace..... Blast Reverberatory Electric Muffle
42	Which of the following outer electronic configuration represents argon ---------- ns^2 ns^2np^6 ns^2np^5 ns^2np^4
43	XeF_4 and XeF_6 are expected to be---------- Oxidising Reducing Unreactive Strongly basic
44	Argon was discovered by---------- Rayleigh Frankland&Lockyer Jansen Ramsay

45	In XeF_2 XeF_4 and XeF_6, the number of lone pairs on Xe are ------,------ and ------- respectively: 2,3,1 1,2,3 3,2,1 4,1,2
46	Most abundant elements in the living bodies are Si Ca Ni F
47	Excess of Manganese leads to ---------- Lung disease Anaemia Goiter Psychiatric disorder
48	Deficiency of zinc causes ---------- Inhibited growth Anemia Goiter Lung disease
49	Na +, K+ ion pump was discovered by---------- Newton Zens Christies skou Einstein Faraday.
50	The arrangement of ligands in the order of increasing field strength is called -------- Spectrochemical series Biochemical series Lanthanide series Spectrobiochemical series