

Transition Elements

Sr	Questions	Answers Choice
1	A transition metal complex can be recognized by various terms. Which is not the proper term	A. Central metal ion B. Coordination number C. Ligand D. Geometry of complex
2	IIB elements (Zn, Cd, Hg) and III B elements (Sc, Y and La) are	A. Non typical transition element B. Typical transition element C. Normal elements D. Inner transition element
3	The elements in which d or f-orbitals are incomplete are called	A. Transition elements B. Typical elements C. Actinides D. lanthanides
4	The total number of d-bock transition element is	A. 10 B. 14 C. 40 D. 30
5	The Mn ³⁺ has color	A. Violet B. Green C. Red/brown D. No color
6	In physical and chemical properties, transition elements show	A. Similarities B. Dissimilarities C. Both of these D. Somestimes similarities, sometimes dissimilarities
7	Most common oxidation states shownby cerium are	A. +2, +4 B. +3, +4 C. +3, +5 D. +2, +3
8	Sodium thisoulophate is used in photography because of its	A. Oxidizing behaviour B. Reducing behaviour C. Complexing behaviour D. Photochemical behaviour
9	Transition elements differ from s and p block elements due to their characteristic properties. What is not he characteristic property of transition elements	A. Transition elements show variable oxidation states B. Their salts are coloured C. They can be used as catalyst D. All of them are metals
10	Which one of the following metal ions is colourless?	A. V ²⁺ B. Cr ³⁺ C. Zn ²⁺ D. Ti ³⁺
11	The colour of transition metal complexes is due to	A. d-d transitions of electrons B. Para magnetic nature of transition elements C. lonization D. Loss of s-electrons
12	Group VIB of transition elements contains	A. Zn, Cd, Hg B. Fe, Ru, Os C. Cr, Mo, W D. Mn, Te, Re
13	Which of the following is not an element?	A. Graphite B. Diamond C. 22-Carat gold D. Rhombic sulphur
14	Transition elements form which type of bond	A. lonic bonds only B. Covalent bonds only C. lonic and covalent bonds D. Polar bonds
15	[Co(NH ₃) ₆] ³⁺ will form structure	A. Square planar B. Tetrahedral C. Octahedral

		D. Trigonal bipyamidal
16	Which of the following transition metal ions will have definite value of magnetic moment?	A. Se ³⁺ B. Ti ³⁺ C. Cu ⁺ D. Zn ²⁺
17	What are alloys	A. A homogenous mixture of two or more elements B. A homohenous mixture of metal and a nonmetal C. A homogenous mixture of two or more metals D. None of the above
18	Which element has 4 unpaired electrons in 3d-orbital	A. Chromium - 24 B. Manganese - 25 C. Iron - 26 D. Cobalt - 27
19	The total number of rare earth elements is	A. 8 B. 32 C. 14 D. 10
20	Rusting of iron is catalysed by	A. Fe B. O ₂ C. Zn D. H ⁺
21	Which of the following element is responsible for oxidation of water to ${\rm O}_2$ in biological process?	A. Fe B. Mn C. Cu D. Mo
22	The coordination number of iron in $[Fe(H_2O)_6]^{3+}$ is	A. 2 B. 3 C. 4 D. 6
23	The free spaces between the metal atoms and its crystal lattice are called	A. Valance spaces B. Empty spaces C. Interstices D. None
24	Corrosion may be prevented by	A. Allcying B. Paints C. Metallic coatings D. All
25	Which of the following elements does not show variable oxidation states?	A. Copper B. Iron C. Zinc D. Titanium
26	In an ooctahedral crystal field splitting, the number of orbitals pushed down in energy is	A. 3 B. 2 C. 5 D. Zero
27	d-block elements are also called :	A. alkali metal B. Alkaline earth metals C. Transition elements D. Electron deficient elements
28	An oxidixing agent	A. K ₂ Cr ₂ O ₇ B. H ₂ SO ₄ C. FeSO ₄ D. K ₂ SO ₄
29	5-d series is in the period :	A. 4th B. 5th C. 6th D. 7th
30	E.D.T.A is	A. Mono-dentate B. Bi-dentate C. Polydentate D. Having three lone pairs of electrons
31	In the extraction of iron, slag is produced which is	A. CO B. FeSiO ₃ C. MgSiO ₃ D. CaSiO ₃
32	Titanium is used as a catalyst in	A. Hydrogenation B. Dehydrogenation C. Polymerization of P.E. Ovidation of appropria

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33	Steel may be manufacture by two processes which two are correct	A. Open hearth process and besemer process B. Open hearth process and Haber process C. Bassemer process and Haber process D. Contact process and Haber process
34	Solubility of KMnO ₄ at higher temperature is:	A. 5% B. 7% C. 15% D. 25%
35	Iron, once dipped in concentrated $\rm H_2SO_4$, does not displace copper from copper sulphates solution, because	A. It less reactive than copper B. A layer of sulphates is deposited on it C. An inert layer of iron oxide is deposited on it D. All valence electrons of iron are consumed
36	The geometry of $[Co(NH_3)_6]^{3+}$ is	A. Tetrahedral B. Square planar C. Octahedral D. None of these
37	f-Block elements are also called	A. Non typical transition elements B. Outer transition elements C. Normal transition elements D. Inner transition elements
38	Potassium chromate has formula	A. KCIO ₃ B. K ₂ CO ₃ C. K ₂ CrO ₄ D. K ₂ Cr ₂ O ₇
39	Which of the following compounds gives red precipitate with AgNO ₃ ?	A. KI B. K ₂ CrO ₄ C. NaBr D. NaNO ₃
40	High purity copper metal is obtained by	A. Carbon reduction B. Hydrogen reduction C. Electrolytic reduction D. Thermite reduction
41	Rusting can be avoided by :	A. Making alloys B. Tin or Zinc plating C. Use of enamel D. All of these
42	Property of transition element is :	A. Low m.p and b.p B. Parramagnetism C. Oxidation state D. Low binding energies
43	Which of the following is a typical transition metal?	A. Sc B. Y C. Ra D. Co
44	Coordination number of Pt in [PtCl(NO $_2$) (NH $_3$) $_4$] 2 †is	A. 2- B. 4 C. 1 D. 6
45	Series starting form 39Y to 48CD is in period:	A. 4th B. 5th C. 6th D. 7th
46	The total number of transition elements is:	A. 10 B. 14 C. 40 D. 50
47	${\rm Fe^{+3}}{\rm and~Mn^{2^{+}}}{\rm are~strong~paramagnetic~because~the~number~of~unpaired~electrons}$ in each is	A. 4 B. 5 C. 6 D. 7
48	Which element does not belong to 3d transition series	A. Ti B. V C. Mn D. Te
49	Besides Zn and Cu , German silver contains the metal	A. Sn B. Ag C. Ni D. Mg
		A. An alloy of Aluminium

50	Misch mental is	B. A mixture of chromium and lead chromate C. An alloy of lanthanoid metals D. An alloy of copper
51	The equivalent weight of KMnO ₄ (formula weight = M) when it is used as an oxidant in neutral medium is	A. M B. M/2 C. M/3 D. M/5
52	Which metal is used for catalytic hydrogenation of oils	A. Cu B. Pt C. Ni D. Pd
53	The number of unpaired electrons in Mn ²⁺ is	A. 5 B. 4 C. 3 D. 2
54	Bronze is an alloy of Cu and	A. Zn B. As C. Sb D. Sn
55	In the manufacture of iron from haematitie, limestone is added to act as	A. Flux B. A reducing agent C. Slag D. An oxidizing agent
56	The compound which gives oxygen on moderate heating is	A. Zinc oxide B. Mercuric oxide C. Aluminium oxide D. Ferric oxide
57	The oxidation number of Ni in [Ni(CO) ₄] is	A. +1 B. 0 C. +4 D4
58	Maximum variable oxidation state is of:	A. Mn ⁺² B. Fe ⁺³ C. Cr ⁺¹ D. a and b
59	The geometrical shape of a transition complexion is related to the state of hybridizing of the central atom. What is trigonal bipyramidal	A. sp ³ B. dsp ² C. dsp ³ D. d ² sp ³
60	Stainless steel contains Cr upto	A. 12% B. 18% C. 10% D. 5%
61	Which of the following metal exhibits more than one oxidation?	A. Na B. Mg C. Fe D. Al
62	Which element belong to 5d series	A. V B. Nb C. Pd D. Hf
63	How many mole of acidfied FeSO ₄ solution can be completely oxidized by one mole of KMNO ₄ ?	A. 10 B. 5 C. 6 D. 2
64	The lanthanides contraction is responsible for the fact that	A. Zr and Y have about the same radius B. Zr and Nb have similar oxidsation state C. Zr and Hf have about the same radius D. Zr and Zn have the same oxidation satete
65	[Zn(NH ₃) ₄] ³⁺ possess geometry	A. Square plannar B. Hexagonal C. Tetrahedral D. None of these
66	The iron obtained from blast furnace is	A. Pig iron B. Wrought ion C. Soft ion D. Steel
67	[Cu[NH ₃) ₄] ⁺² will form structure	A. Square planar B. Tetrahedral C. Octahedral D. Trigonal bipyramidal

68	The less reactivity of transition metal is due to	A. High heats of sublimation B. High ionization energies C. Low heats of salvation D. All these
69	Which is not a bidentate ligand	A.
70	d-block elements closely resemble in their physical and chemical properties. Which statement is incorrect	A. They show variable valency B. Their ions and compounds are coloured C. They are good conductors of heat and electricity D. Their compounds are diamagnetic
71	Potassium hexacyanoferrate (II) has the formula	A. K ₄ [Fe(CN) ₆] B. K ₃ [Fe(CN) ₆] C. K ₂ [Fe(CN) ₆] D. K [Fe(CN) ₆]
72	Which of the following d-block elements can show the highest oxidation number in its compounds	A. Chromium B. Copper C. Nickel D. Manganese
73	Most transition elements show	A. Diamagnetic behavior B. Ferromagnetic behavior C. Paramagnetic behavior D. None of these
74	Bessemer converter is used in the manufacture of	A. Pig iron B. Steel C. Wrought iron D. Cast iron
75	What is wrong about transition metals?	A. Diamagnetic B. Paramagnetic C. Form complexes D. Shows variable oxidation state
76	Non-formation of menisus by Hg in presence of O ₃ is due to the formation of	A. Mercuric oxide B. Mercurous oxide C. Mercuric chloride D. Mercurous chloride
77	CuSO ₄ . 5H ₂ O is used to prepare	A. Transition complex B. Fehling's 'A' sol C. Fehling's 'B' sol D. Fehling's sol
78	The amount of Ni in stainless steel is	A. 3% B. 4% C. 5% D. 8%
79	The percentage of carbon in different types of iron products is in the order of	A. Cast iron > wrought iron > steel B. Wrought iron > steel > cast iron C. Cast iron > steel > wrought iron D. Cast iron = steel > wrought iron
80	Transition elements are called so because:	A. Form interstital sompounds B. have high m.p C. In between 's' and' 'p' block elements D. All of these
81	Among the lanthandes the one obtained by synthetic method is	A. Lu B. Pm C. Pr D. Gd
82	Which of the following has the maximum number of unpaired d-electrons?	A. Zn B. Fe ²⁺ C. Ni ³⁺ D. Cu ⁺
83	Interstitial compounds have	A. Half formula B. Fixed formula C. Indefinite formula D. None
84	Electronic configuration of Cu ⁺² is	A. 4S ² , 3d ⁹ B. 4s ⁻¹ , 3d ¹⁰ C. 4S ⁰ , 3d ⁹ D. None of these
85	Potassium ferrocyanide is a	A. Mixed salt B. Double salt C. Complex salt D. Normal salt

86	Which of the following is used as disinfectant	A. K ₂ Cr ₂ O ₇ B. KMnO ₄ C. K ₂ MnO ₄ D. K ₂ Cr ₄
87	Out of 110 known elements, transition elements are	A. 40 B. 60 C. 50 D. 80
88	Which of the following is obtained when Fe reacts with dil. HNO ₃ ?	A. N ₂ O B. NO C. NO ₂ D. None of these
89	During oxidation in k ₂ Cr ₂ O ₇ , Cr VI changes to :	A. I B. II C. III D. IV
90	The colour of transition metal complexes is due to:	A. d-d transitions of electorns B. Paramagnetic nature of transition C. lonization D. Loss of s-electrons
91	The colour of a transition metal complex is due to d-d transition The colour of the complex is the complementary of the colour absorbed. Thus $[{\rm Ti}({\rm H}_2{\rm O}_6)^{3^+}{\rm abosrbs}$ yellow light and transmits blue and red colours therefore the solution of titanium complex appears	A. Blue B. Red C. Yellow D. Mixture of blue and red or violet
92	Stainless steel contains ion and carbon along with	A. Ni and Cr B. Cr and Co C. Co and Mn D. Mn and Ni
93	Coordination number of Pt in [PtCl (NO ²) (NH ³) ⁴] ²⁻	A. 2 ⁻ B. 4 C. 1 D. 6
94	Which element does not belong to 4d series	A. Y B. Zr C. Mo D. Zn
95	Which of the following is non-typical transition element?	A. Cr B. Mn C. Zn D. Fe
96	A transition element is defined as an element of 3d series	A. Which is metal B. Which has one stable ion C. Which has two stable ions D. Which has at least one stable ion with incomplete d-orbital
97	Which one of the following has highest density	A. Zn B. Os C. Ni D. Cu
98	Transition metals form complexes due to the participation of partially filled	A. f-orbitals B. d-orbitals C. s-orbitals D. p-orbitals
99	The number of unpaired electrons in $Fe^{3+}(Z = 26)$ are	A. 5 B. 6 C. 3 D. 4
100	Choose the correct answer of transition elements?	A. Transition elements have low melting points B. Transition elements do not have catalytic activity C. Transition elements exhibit variable oxidation states D. Transition elements exhibit inert pair effect
101	The colour of transition metal complexes is due to	A. d-d transitions of electrons B. Para magnetic nature of transition elements C. lonization D. Loss of s-electrons
102	Elements in which f-orbitals are in the process of completion are called	A. Outer transition element B. Inner transition elements C. Non-tranistion elements D. Radioactive elements

103	Cu ²⁺ with d ⁹ electronic configuration appears	A. Yellow B. Pink C. Blue D. Green
104	Coordination number of Pt in [Pt Cl(NO ₂) (NH ₃)] ²⁻ is	A. 2- B. 4 C. 1 D. 6
105	f-block elements are called :	A. Alkali metal B. Alkakline earth metals C. Transition elements D. Electron deficient elements
106	Bell metal is an alloy of Sn and	A. Copper B. Iron C. Zinc D. Magnesium
107	The total number of transition elements is	A. 10 B. 14 C. 40 D. 50
108	Which is non typical transition element :	A. Ni B. Co C. Y D. Fe
109	Corrosion of iron can be prevented by coating the surface with	A. Zn B. Sn C. Ni D. Any of the above
110	German silver does not contain	A. Cu B. Zn C. Ni D. Mn
111	All 3d series elements show variable oxidation states. The one shown by all 3d elements is	A. +2 B. +3 C. +4 D. +5
112	Group VI-B of transition elements contains:	A. Zn, Cd, Hg B. Fe ,Ru ,Os C. Cr, Mo ,W D. Mn, Te, Re
113	[Ti(H ₂ O) ₆] ⁺³ ion absorbs colour:	A. Blue B. Yellow C. Green D. Red
114	Which of the following is a transition element	A. Sr B. Sn C. Cr D. Pb
115	In the electronic configuration of Cr one electron from 4s sub-shell is transfered to 3d sub-shell because	A. The 3rd orbital is of lower energy than 4s B. The 4s orbital is of equal energy to 3d orbital C. The half filled d-subshell is more stable than incomplete d-sub shell D. 6 unpaired electrons make Cr more paramagnetic
116	What is the shape of Fe(CO)5molecule?	A. Tetrahedral B. Octahedral C. Trigonal bipyramidal D. Square pyramidal
117	Which of the following is a non-typical transition elements	A. Cr B. Mn C. Zn D. Fe
118	4-d series is in the period:	A. 4th B. 5th C. 6th D. 7th
119	Platinum (IV) chloride combines with ammonia to form compounds in which the coordination number of the platinum is 6. A formula unit on one of the compound contains a cation and only two chloride ions. What is the formula of this compound	A. Pt(NH ₃) ₆ Cl ₄ B. Pt(NH ₃) ₅ Cl ₄ C. Pt(NH ₃) ₄ Cl ₄

		D. Pt(NH ₃) ₃ Cl ₄
120	Oxalic acid oxidizes to:	A. CO B. CO ₂ C. Oxalates D. None of these
121	Which of the following is a not typical transition element	A. Cr B. Mn C. Zn D. Fe
122	AgCl is soluble is	A. Aqua regia B. H ₂ SO ₄ C. HCl D. NH ₃
123	Which of the following acts as ligand	A. NH ₃ B. NH ₂ CH ₂ CH ₂ CH ₂ CH ₂ C. C ₂ O ²⁻
124	Addition of iron fillings to CuSO ₄ solution caused precipitation of Cu owing to the	D. All these A. Reduction of Cu ²⁺ B. Oxidation of Cu ²⁺ C. Reduction of Fe D. Reduction of Fe ³⁺
125	The total number of inner transition elements in the periodic table is	A. 10 B. 14 C. 28 D. 30
126	Which of the following metals is sometimes found in native state in nature?	A. Al B. Cu C. Fe D. Mg
127	Which is the formula of tetra-ammine chloronitro platinum (VI) sulphate?	A. [Pt(NH ₃) ₄ (NO ₂)]SO ₄ B. [PtNO ₂ Cl(NH ₃) ₄ C. [PtCl(NO ₂)(NH ₃) ₄]SO ₄ C. [PtCl(NO ₂)(NH ₃) ₄]SO ₄ D. [Pt(NH ₃)(Sub>4) (NO ₂)(Sub>4)
128	Which is used to identify Cu ²⁺ ions	A. Nitric acid B. Sulfuric acid C. NaOH D. HCI
129	Bronze is an alloy which contains	A. 60% cu B. 70% cu C. 80% cu D. 99% cu
130	Which of the following is not correct about transition metals?	A. Their melting and boiling points are high B. Their compounds are generally coloured C. They can form ionic or covalent compounds D. They do not exhibit variable valency
131	3-d series elements are present in:	A. First period B. Second Period C. Third period D. 4th period
132	Which is in differnet phase form other metals	A. Ni B. Hg C. Cd D. Na
133	Across the lanthanide series, the basicity of the lanthanide hydroxides	A. Increases B. Decreases C. First increases and then decreases D. First decreases and then increases
134	The percentage of carbon in different types of iron products is in the order of:	A. Cast iron > wrought iron > steel B. wrought iron > steel > cast rion C. Cast iron > steel > wrought iron D. Cast iron = steel > wrought iron
135	The number of unpaired electrons in ferrous ion (Z - 26) is	A. 3 B. 2 C. 4 D. 5

136	The formula of curprite is	A. Cu ₂ S B. Cus C. Cu ₂ O D. CuCO ₃
137	The oxidation state of Fe in [Fe(CN) ₆] ³⁻ is	A. +2 B. +3 C. +4 D3
138	Which has the largest radius?	A. CO ³⁺ B. Mn ³⁺ C. Fe ³⁺ D. Cr ³⁺
139	An element in +3 oxidation state has the electronic configuration (Ar) $3\mathrm{d}^3$. Its atomic number is	A. 24 B. 23 C. 22 D. 21
140	Bell metal is an alloy of	A. Cu, Zn, and Sn B. Cu, Zn and Ni C. Cu and Zn D. Cu and Sn
141	Which alloy contains 50% copper, 25% zinc and 25% nickel	A. German silver B. Gun metal C. Bell metal D. Brass
142	The colour of the transition metal compounds is due to	A. p-d transition B. d-d transition C. s-p transition D. None of these
143	What is the name of the comlex [Ni(CO)4]	A. Tetracarbonylnickel (o) B. Tetracabonylnickel C. Tetracabonylnickel (II) D. Tetracabonylnickel (IV)
144	Transition metals mostly are	A. Diamagnetic B. Paramagnetic C. Neither diamagnetic nor paramagnetic D. Both diamagnetic and paramagnetic
145	Cuprous ore among the following is	A. Chalcopyites B. Azurite C. Cuprite D. Malachitre
146	The protection of steel by chrome plating is due to	A. Cathodic protection B. Anodic protection C. Covering of steel surface D. Formation of alloy with iron
147	Which is the correct electronic configuration of Cr - 24	A. 1s ² , 2s ² , 2p ⁶ , 3s ² , 3p ⁶ , 3d ⁴ , 4s ² B. 1s ² , 2s ² , 2p ⁶ , 3d ² , 2p ⁶ , 3d ² , 2p ⁶ , 3d ³ , 4s ² , 4p ¹ , 2s ² , 4p ² , 4p ¹ C. 1s ² , 2s ² , 2p ² , 3p ⁶ , 3d ⁵ , 3d ² , 2p ² , 2p ² , 2p ² , 3p ⁶ , 3d ⁵ , 3p ⁶ , 3d ⁵ , 4s ¹ D. 1s ² , 2s ² , 2p ⁶ , 3s ² , 2p ⁶ , 3d ⁵ , 3p ⁶ , 3d ⁵ , 3p ⁶ , 3d ⁵ , 3p ¹ , 3p ¹ , 3p ¹ , 3d ⁵ , 3p ¹
148	Mercury is the only metal which is liquid at 0°C. this is due to its	A. Very high ionization energy and weak metallic bond B. Low ionization potential C. High atomic weight D. High vapour pressure
149	Which period starts from ₁₁ Sc to ₃₀ Zn ?	A. First Period B. Second Period C. Third Period D. 4th Period
150	Which of the following is a carbonate are?	A. Pyrolusite B. Malchite C. Diaspore D. cassiterite

151	Content of carbon in steel is:	A. 0.12 to 0.25% B. 0.25% to 2.5% C. 3.0 to 3.5% D. 4.0 to 4.5%
152	A phtotographic plate is coated with an emulsion of silver nitrate and	A. AgCI B. AgI C. AgBr D. NaNO ₃
153	Turnbull's blue is a compound called?	A. Ferricyanide B. Ferrous ferricyanide C. Ferrous cyanide D. Ferri - Ferro cyanide
154	Which is the formula of tetra-ammine chloro-nitro platinum (IV) sulphate	A. [Pt(NH ₃) ₄ (NO ₂)] SO ₄ B. [Pt NO ₂ Cl(NH ₃) ₄] SO ₄ C. [Pt Cl(NO ₂) (NH ₃) ₄] SO ₄ D. [Pt (NH ₃) Cl[NH ₃) Cl[NO ₄) Cl[NO ₄)
155	Coordination sphere may be:	A. Cationic B. Anionic C. Neutral D. All above
156	Series starting from57La,42Hf -80Hg is in the period:	A. 4th B. 5th C. 6th D. 7th
157	Which of the following is a typical transition metal	A. Sc B. Y C. Ra D. Co
158	The color of Cr ³⁺ ion is	A. Violet B. Blue C. Pink D. Green
159	6-d series is in the period :	A. 4th B. 5th C. 6th D. 7th
160	Which of the following is not related to transition metals	A. They have a high tensile strength B. They are ductile C. They are malleable D. They have low melting points