

Time: One Hour

Max. Marks: 25

## Instructions

Solve any 25 questions from Q.1 to Q.30

- 1 Which of the following have octahedral geometry?  
 (A)Ni(CO)<sub>4</sub>] (B)[Ni(CN)<sub>4</sub>]<sup>2-</sup> (C)[Cu(NH<sub>3</sub>)<sub>6</sub>]<sup>2+</sup> (D)Fe(CO)<sub>5</sub>
- 2 Give the Symmetry symbol for dx<sup>2</sup>-y<sup>2</sup> and dz<sup>2</sup> orbitals  
 (A)t<sub>2g</sub> (B)e<sub>g</sub> (C)a<sub>1g</sub> (D)t<sub>1u</sub>
- 3 Strong field ligand is  
 (A)Cl<sup>-</sup> (B)Br<sup>-</sup> (C)I<sup>-</sup> (D)CN<sup>-</sup>
- 4 The energy of e<sub>g</sub> orbitals in octahedral complexes increases by  
 (A)-6 Dq (B)-4 Dq (C)+6 Dq (D)+4 Dq
- 5 The magnitude of 10Dq depends on  
 (A)oxidation state of central metal ion (B)Geometry of ligands (C)Nature of ligands (D)All of these
- 6 Which of the following is a Neutral ligand  
 (A)CO (B)Cl<sup>-</sup> (C)Br<sup>-</sup> (D)I<sup>-</sup>
- 7 Which of the following is tetrahedral complex?  
 (A)[Co(CN)<sub>6</sub>] (B)[Ni(CO)<sub>4</sub>] (C)[Cr(NH<sub>3</sub>)<sub>4</sub>Cl<sub>2</sub>]Cl (D)[Cr(H<sub>2</sub>O)<sub>4</sub>Cl<sub>2</sub>]Cl
- 8 CFSE is zero for complexes with  
 (A)d<sup>5</sup> weak field (B)d<sup>10</sup> weak or strong field (C)d<sup>9</sup> weak field (D)both a and b
- 9 Which of the following is not electronic transition?  
 (A)d-d transition (B)ligand to metal transition (C)Metal to ligand transition (D)Metal to metal transition
- 10 The ground state term symbol for d<sup>5</sup> system  
 (A)6S (B)2D (C)3F (D)4F
- 11 The number of unpaired electron in [Ti(H<sub>2</sub>O)<sub>6</sub>]<sup>3+</sup> is  
 (A)3 (B)0 (C)2 (D)1
- 12 The number of peak observed in electronic spectra of [Ti(H<sub>2</sub>O)<sub>6</sub>]<sup>3+</sup> complex ion  
 (A)1 (B)2 (C)3 (D)none of these
- 13 The ground term symbol for Cu<sup>2+</sup> ion is  
 (A)6S (B)2D (C)3F (D)4F
- 14 Which of the following is not organometallic Compounds.  
 (A)CH<sub>3</sub>Li (B)(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub> (C)(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>Zn (D)Ti(CH<sub>3</sub>)<sub>4</sub>
- 15 The example of Metal Carbonyl is  
 (A)[Fe(CO)<sub>5</sub>] (B)[CO(en)<sub>3</sub>]<sup>3+</sup> (C)[Ni(CN)<sub>4</sub>]<sup>2-</sup> (D)None of these
- 16 The IUPAC name of the C<sub>2</sub>H<sub>5</sub>Na is  
 (A)Ethyl methyl sodium (B)Ethyl sodium (C)Sodium ethyl (D)Sodium methyl
- 17 Organolithium and formaldehyde interacts to give  
 (A)Primary alcohol (B)Secondary alcohol (C)Tertiary alcohol (D)All of the above
- 18 CH<sub>3</sub>-Mg-Br is Organometallic in nature due to the presence of  
 (A)Mg-Br bond. (B)C-Mg bond. (C)C-Br bond. (D)C-H bond
- 19 The correct structure of Fe(CO)<sub>5</sub> is  
 (A)Octahedral (B)Tetrahedral (C)Square pyramidal (D)Trigonal bipyramidal
- 20 The metal present in hemoglobin contains  
 (A)Na (B)K (C)Fe (D)Mg
- 21 The metal involved in Nitrogen fixation is  
 (A)Si (B)Al (C)Mo (D)Na
- 22 What is the function of myoglobin ?  
 (A)Transport oxygen (B)Store oxygen (C)Store Carbon dioxide (D)None of these
- 23 What are the biological role of Ca metals in non-enzymatic processes?  
 (A)messenger for hormonal action (B)trigger for muscle contraction (C)initiation of blood clotting (D)All of these
- 24 Which of the following metal maintain the osmotic pressure of the body fluids  
 (A)Li (B)Ca (C)Fe (D)Na
- 25 How many haem units present in haemoglobin?  
 (A)2 (B)4 (C)6 (D)1
- 26 Which metal is present in chlorophyll  
 (A)Cobalt (B)Magnesium (C)Copper (D)Iron
- 27 Chromatography is a physical method that is used to separate and analyses \_\_\_\_\_

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- (A)Simple mixtures                      (B)Complex mixtures                      (C)Viscous mixtures                      (D)Metals
- 28 Thin layer chromatography is
- (A)partition chromatography                      (B)electrical mobility of ionic species                      (C)adsorption chromatography                      (D)None of the above
- 29 The pattern on the paper in chromatography is called
- (A)chroming                      (B)Chroma                      (C)chromatograph                      (D)chromatogram
- 30 The mobile phase in chromatography can be
- (A)gas only                      (B)liquid only                      (C)solid                      (D)gas or liquid