





## INORGANIC CHEMISTRY -II

CODE: INC

STD: XII

MARKS: 75

TIME: 1½ HR

10X1=10

### I. CHOOSE THE BEST ANSWER:

- The electronic configuration of copper atom is  
a)  $3d^{10}4s^1$       b)  $3d^{10}4s^2$       c)  $3d^94s^2$       d)  $3d^54s^24p^4$
- Which of the following ions will give colourless aqueous solution ?  
a)  $Ni^{2+}$       b)  $Fe^{2+}$       c)  $Cu^{2+}$       d)  $Cu^+$
- Which of the following has the maximum number of unpaired electrons ?  
a)  $Mg^{2+}$       b)  $Ti^{3+}$       c)  $V^{3+}$       d)  $Fe^{2+}$
- The transition elements with lowest Atomic no is  
a) Scandium      b) Titanium      c) Zinc      d) Lanthanum
- The oxidation number of nickel in the complex ion  $[NiCl_4]^{2-}$  is  
a) +1      b) -1      c) +2      d) -2
- In example of an ambidentate ligand is  
a)  $Cn^-$       b)  $Cl^-$       c)  $NO_2^-$       d)  $I^-$
- In  $[Fe^{11}(CN)_6]^{4-}$ , The central metal ion is  
a) Fe      b)  $Fe^{+2}$       c)  $Fe^{+3}$       d)  $CN^-$
- The most penetrating radiations are  
a)  $\alpha$  - rays      b)  $\beta$  - rays      c)  $\gamma$  - rays      d) all are equally penetrating
- ${}_{92}U^{235}$  nucleus absorbs a neutron and disintegrates into  ${}_{54}Xe^{144}$ ,  ${}_{38}Sr^{90}$  and X. What will be the product X ?  
a) 3 neutrons      b) 2 neutrons      c)  $\alpha$  particle      d)  $\beta$  particle
- Loss of  $\beta$  particle is equivalent to  
a) Increase of one proton only      b) Decrease of one neutron only  
c) Both (a) and (b)      d) None of these

### II. GIVE ANSWER IN ONE OR TWO SENTENCES

10X3=30

- Why transition elements form complexes ?
- Explain chrome plating ?
- How gold dissolves in aquaregia ?
- What is spitting of silver ? How it is prevented ?
- Give one example for monodentate ligand , a bidentate and a chelating ligand.
- What are chelates ?
- In what ways complex salt differs from double salt ?
- Name the following complexes. a)  $[CO(NH_3)_5(H_2O)]Cl_3$       b)  $Na[B(NO_3)_4]$
- What is Q value of a nuclear reaction ?
- What are the types of nuclear reaction. Give example for each type.

### III. GIVE SHORT ANSWERS:

3X5=15

- Explain briefly the extraction of copper from its chief ore ?
- Explain co-ordination isomerism with suitable examples.
- Distinction between nuclear fission and nuclear fusion.

### III. GIVE DETAILED ANSWERS:

2X10=20

- A) Explain how dichromate is extracted from its chromite ore. Write the balanced chemical equation for the reaction between an acidified solution of  $K_2Cr_2O_7$  and KI  
B)  $[Ni(CN)_4]^{2-}$  diamagnetic, whereas  $[NiCl_4]^{2-}$  is paramagnetic . why?
- A) What is nuclear fission ? What are controlled and uncontrolled fission reactions ? How can the energy released in such reactions be used for practical purpose ?  
B) Explain the Extraction of gold from its ore by Mac- Arthur- Forrest Cyanide process.