

**Model Question Paper**  
**d- Block Elements - Part IV**

12th Standard

**Chemistry**

Reg.No. : 

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I. Answer all the questions.

II. Use Blue pen only.

Time : 01:30:00 Hrs

Total Marks : 50

5 x 1 = 5

**Section-A**

- 1) Which of the following has the maximum number of unpaired electrons?  
(a)  $Mn^{2+}$  (b)  $Ti^{3+}$  (c)  $V^{3+}$  (d)  $Fe^{2+}$
- 2) Among the following statements, the incorrect one is  
(a) Calamine and siderite are carbonates (b) Argentite and cuprite are oxides (c) Zinc blende and pyrites are sulphides  
(d) Malachite and azurite are ores of copper
- 3) The Chemical composition of slag formed during the smelting process in the extraction of copper is  
(a)  $Cu_2O + FeS$  (b)  $FeSiO_3$  (c)  $CuFeS_2$  (d)  $Cu_2S + FeO$
- 4) The transition element with the lowest atomic number is  
(a) Scandium (b) Titanium (c) Zinc (d) Lanthanum
- 5) Which transition element shows highest oxidation state  
(a)  $Sc$  (b)  $Ti$  (c)  $Os$  (d)  $Zn$

**Section-B**

- 6) Name the lightest and the heaviest elements (in terms of density) among the transition elements
- 7) Which of the following ions would form colourless complexes  $Cu^{2+}$ ,  $Zn^{2+}$ ,  $Ti^{3+}$ ,  $Ti^{4+}$ ,  $Cd^{2+}$
- 8) What happens when KI solution is added to an aqueous solution of copper sulphate?
- 9) What is the action of heat on copper sulphate crystals? Write the equation
- 10) The transition elements show variable oxidation states. Give reason.

5 x 3 = 15

**Section-C**

- 11) How is copper extracted from its chief ore?
- 12) Complete and balance the following:  
a)  $K_2Cr_2O_7 \xrightarrow{\Delta}$   
b)  $K_2Cr_2O_7 + KOH \rightarrow$   
c)  $K_2Cr_2O_7 + KCl + H_2SO_4$
- 13) Complete and balance the following.  
a)  $CuSO_4 + 5H_2O \xrightarrow{\Delta}$   
b)  $CuSO_4 + KI \rightarrow$   
c)  $CuSO_4 + NH_4OH \rightarrow$
- 14) Complete the following  
a)  $AgNO_3 \xrightarrow{\Delta}$   
b)  $CuSO_4 + KCN \rightarrow$   
c)  $ZnCO_3 \xrightarrow{\Delta}$
- 15) Write the ores, and their formulae of the following metals  
a) Ag b) Zn c) Au d) Cr and e) Cu
- 16) Name the alloys of chromium and write their uses.

6 x 5 = 30

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