

UNIT TEST-4A
(Transition and Inner Transition Elements)

CLASS : XII

MARK : 35

SUB : CHEMISTRY

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TIME : 1.30 HRS

PART-I**I. Choose and write the correct answer :****5 X 1=5**

1. $\text{CH}_3\text{-CHO} + \text{CO} \xrightarrow{\text{Rh/ Ir complex}} ?$
- (a) Poly propylene (b) Butan-1-al
(c) Acetic acid (d) Acetate
2. The alloy of copper that contain zinc is
(a) Monel metal (b) Bronze (c) Bell metal (d) none of these
3. Which of the following d block element has half filled penultimate d sub shell as well as half filled valence sub shell?
(a) Cr (b) Pd (c) Pt (d) none of these
4. The catalytic behaviour of transition metals and their compounds is ascribed mainly due to
(a) their magnetic behaviour (b) their unfilled d orbitals
(c) their ability to adopt variable oxidation states (d) their chemical reactivity
5. The transition element which has only +3 oxidation state is
(a) Ni (b) Mn (c) Cr (d) Sc

PART-II**II. Answer any three questions (q.no.10 is compulsory)****3 x 2 =6**

6. What are interstitial compounds? Give examples .
7. Which is more stable Fe^{2+} or Fe^{3+} ? why ?
8. Calculate the spin only magnetic moment of Ti^{3+} and Mn^{2+} .
9. Write a note on zeigler –Natta catalysis .Give its use
10. Which is stronger reducing agent Cr^{2+} or Fe^{2+} ?

PART-III**III. Answer any three questions****3 x 3 =9**

11. Explain the properties of interstitial compounds
12. Explain : Zirconium and Hafmium exhibit similar properties
13. Why most of the d-block elements and their compounds used as a catalyst?
Give examples
14. Describe the variable oxidation state of 3d series elements
15. Explain why most of the d-block elements form complexes?

PART-IV**IV. Answer any three questions .****3 x 5 =15**

16. i) Explain Hume-Rothery rule for formation of alloys?
ii) Why first ionisation enthalpy of chromium is lower than that of zinc?
17. i) Calculate the number of unpaired electrons and spin only magnetic moment of Cr^{3+} , Co^{2+} and Fe^{3+} ?
ii) Which metal in the 3d series exhibit +1 oxidation state most frequently and why?
18. i) Transition metals show high melting points why?
ii) A substance is found to have a magnetic moment of 3.9 BM. How many unpaired electrons does it contain?
19. Describe the preparation of $\text{K}_2\text{Cr}_2\text{O}_7$?
20. i) What is meant by transition elements? Give two examples.
ii) Why Mn^{2+} is more stable than Mn^{3+} ?
