

D AND F BLOCKS.

1. Which of the following is a characteristic property of transition metals?
 - A) Low melting point
 - B) Formation of colored ions
 - C) Poor conductivity
 - D) Absence of unpaired electrons
2. The element with electronic configuration $[\text{Ar}] 3d^5 4s^1$ is:
 - A) Fe
 - B) Mn
 - C) Cr
 - D) Cu
3. Which of the following oxidation states is common for all lanthanides?
 - A) +2
 - B) +4
 - C) +3
 - D) +5
4. Which of the following d-block elements does **not** show variable oxidation states?
 - A) Zn
 - B) Fe
 - C) Mn
 - D) Cr
5. Which transition element shows the maximum number of oxidation states?
 - A) Fe
 - B) Mn
 - C) V
 - D) Cr
6. The color of $[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$ is due to:
 - A) Ligand to metal charge transfer
 - B) d-d transition
 - C) s-p transition
 - D) f-f transition
7. Which of the following is a **non-transition** element?
 - A) Sc
 - B) Zn
 - C) Mn
 - D) Co
8. The lanthanide contraction is mainly due to:
 - A) Poor shielding by 4f electrons
 - B) Poor shielding by 5f electrons

- C) Increase in nuclear charge
- D) Both A and C

9. Which of the following does **not** form colored ions?

- A) Cu^{2+}
- B) Fe^{3+}
- C) Zn^{2+}
- D) Cr^{3+}

10. Which of the following 3d-series elements has the **lowest** melting point?

- A) Cr
- B) Zn
- C) Fe
- D) Ni

11. Actinides show greater range of oxidation states than lanthanides due to:

- A) Smaller size
- B) Higher nuclear charge
- C) 5f orbitals being more exposed
- D) 6d orbital participation

12. Which element shows +8 oxidation state?

- A) Os
- B) Mn
- C) Ru
- D) Fe

13. Cerium (Ce) shows the oxidation state:

- A) +2 only
- B) +3 only
- C) +4 only
- D) +3 and +4

14. Which of the following is used as a catalyst in the contact process?

- A) Zn
- B) Cu
- C) V_2O_5
- D) MnO_2

15. Which of the following has the maximum magnetic moment?

- A) Fe^{2+}
- B) Mn^{2+}
- C) Ni^{2+}
- D) Co^{2+}

16. Which of the following lanthanides is **radioactive**?

- A) Gd
- B) Pm
- C) Nd
- D) Dy

17. Which of the following d-block ions is **colorless**?

- A) Ti^{3+}
- B) Sc^{3+}
- C) Fe^{2+}
- D) Cr^{3+}

18. Which of the following elements shows **filling of 5f orbitals**?

- A) La
- B) Ac
- C) Ce
- D) U

19. Why are transition metals good catalysts?

- A) High electronegativity
- B) Variable oxidation states
- C) High atomic radius
- D) Complete d-subshell

20. The cause of **lanthanide contraction** is:

- A) Increase in nuclear charge
- B) Increase in electron–electron repulsion
- C) Poor shielding by 4f electrons
- D) Both A and C

ANSWERS-1.(B) 2.(C) 3.(C) 4.(A) 5.(B) 6.(B) 7.(B) 8.(D) 9.(C) 10.(B) 11.(C) 12.(A) 13.(D)

14.(C) 15.(B) 16.(B) 17.(B) 18.(D) 19.(B) 20.(D)