

Part – B

5x6=30

Answer the following

Answer should not exceed 400 words or two pages

11. a. i) Give an account on Sidwick's electronic concept of coordinate bond in coordination compounds.
ii) Write a short note on EAN rule.
(or)
11. b. Give an account on geometrical isomerism exhibited by 6 coordination compounds.
12. a. Explain with examples how the nature of ligand affects the magnitude of Δ .
(or)
12. b. Explain why $[\text{CoF}_6]^{3-}$ is paramagnetic while $[\text{Co}(\text{NH}_3)_6]^{3+}$ is diamagnetic?
13. a. Explain the role of coordination chemistry in the qualitative identification of aluminium and zinc.
(or)
13. b. Give an account on the symmetry operations of H_2O molecule.
14. a. Give the extraction of titanium from ilmenite ore.
(or)
14. b. What are the general characteristics of d - block elements?
15. a. What is lanthanide contraction? What are its consequences?
(or)
15. b. How is thorium isolated from monazite?

Part – C

5x12=60

Answer the following

Answer should not exceed 800 words or 4 pages

16. a. i) What is stability constant? What are the factors affecting stability constant? Explain. (8)
ii) Write a note on Werner's coordination theory. (4)
(or)
16. b. Give an account on optical isomerism exhibited by 6 – coordinate compounds.
17. a. i) Explain the crystal field splitting of d-orbitals in octahedral complexes. (8)
ii) Give an account on spectrochemical series. (4)
(or)
17. b. i) Write note on inner and outer orbital complexes. (8)
ii) Explain why $\text{Ni}(\text{Co})_4$ is tetrahedral but $[\text{Ni}(\text{CN})_4]^{2-}$ is square planar. (4)
18. a. Discuss in detail about the principle and applications of complexometric titrations.
(or)
18. b. Explain the role of coordination chemistry in the quantitative analysis of nickel and aluminium.
19. a. i) Discuss the extraction process, properties and uses of vanadium. (8)
ii) Write the preparation and applications of ammonium molybdate. (4)
(or)
19. b. Write the preparation, properties and uses of
i) potassium ferro cyanide and
ii) nickel (II) chloride
20. a. Give an account on the isolation of lanthanides.
(or)
20. b. i) What are the general characteristics of lanthanides and actinides? (8)
ii) Write note on synthesis of trans uranium elements. (4)