



Q.1. Answer the following short questions:

(15x2=30)

- (i) How does VBT differ from MOT?
- (ii) How does stability of chelate depend upon the nature of ligand?
- (iii) Write two similarities between Be and Al.
- (iv) Which indicators are used in EDTA titration?
- (v) What is inert pair effect? Give an example.
- (vi) SiCl_4 reacts with water while CCl_4 does not? Justify it.
- (vii) Why NF_5 molecule does not exist?
- (viii) Give classification of organic reagents used in inorganic analysis.
- (ix) Give four similarities between Li and Mg.
- (x) What is 3 center – 2 electron bond? Give one example.
- (xi) Name different organic reagents used as indicators in acid – base titration.
- (xii) Why is BF_3 more stable than BH_3 ?
- (xiii) What are Chelates? Give two examples.
- (xiv) Draw structure of $[\text{Mg} - \text{EDTA}]^{-2}$
- (xv) Write physical state of halogens at room temperature and why they are different?

Q.2. Answer the following questions.

(3x10=30)

- i) (a) Explain Walsh diagram for Water molecule. (5)
(b) What are the main discrepancies of VSEPR and VBT? (5)
- ii) Give the theoretical arguments and experimental evidences in the favor of d – orbital participation of non – metals. (10)
- iii) Describe chemistry of Rubeanic Acid and Pyrogallol in detail. (10)