

Exam. Code : 103202

Subject Code : 1292

B.A./B.Sc. Semester—II

CHEMISTRY

(Inorganic Chemistry—II)

Time Allowed—3 Hours]

[Maximum Marks—35

## PART—A

Attempt ALL questions. Each question carries 1 mark.

1. Write down the reaction of borax with water.
2. Give a chemical reaction to show that Tin(II) is a reducing agent.
3. Comment upon the first ionization potentials of alkali and alkaline earth metals.
4. What are the factors responsible for diagonal relationship ?
5. What is the Lewis acid ? Give an example.
6. For the coordination number 5 name the possible geometries.
7. What is the main cause of colour of Potassium permanganate ?
8. How does the effective nuclear charge experienced by the transition elements when we move from left to right along a series ?

**PART—B**

Attempt **TWO** questions from each Section. Each question carries  $4\frac{1}{2}$  marks.

**SECTION—I**

9. What is Ionisation enthalpy ? Why does it decrease from carbon to silicon ?
10. Discuss the shape and hybridisation of  $\text{BF}_3$ . Comment upon the B-F bond lengths in  $\text{BF}_3$ .
11. With the help of reactions, justify the amphoteric nature of aluminium.

**SECTION—II**

12. How is silicon tetrachloride prepared ? Discuss its properties.
13. Discuss in detail the structure of tetrasulfur tetranitride. Comment on the electron distribution in the ring.
14. Write a note on the Arrhenius theory of acids and bases with the help of examples.

**SECTION—III**

15. What are the factors responsible for colour and magnetic behavior of the transition elements ? Discuss with the help of examples.
16. Comment upon the fact that the lowest oxide of a transition metal is basic whereas the highest oxide is usually acidic.
17. Why do the second and third rows of transition elements resemble each other much more closely than they resemble the first row ?