

Examination: BA/BSc. (Part-I)

Maximum Marks: 40

Paper: Chemistry – II (Inorganic)

Time Allowed: 3 Hrs.

Note: Attempt five questions in all selecting at least one question from each part and question no.1 is compulsory.

Q.No. 1 a)

Fill in the blanks with suitable words

1x4=4

- I. The molecular geometry of NH_3 is
- II. Argon was isolated from air by
- III. The general electronic configuration of inert gases is
- IV. In electrochemical series is the strongest reducing agent?

b) Answer the following short questions?

2x2=4

- I. The atomic size of Na^+ is smaller than Na?
- II. What are ligands?

Section-I

Q.No. 2 a) Define electrochemical series and give its applications? 4

b) What are coordinate covalent bonds? Describe characteristics feature of their compounds. 4

Q.No. 3 a) Draw and explain the molecular structure of the following molecules on the basis of MOT? 2+2

- i. N_2
- ii. HF

b) Describe the lowery-Bronsted Acid-Base Theory? 4

Q.No. 4 a) Predict the geometry of the following on the basis of VSEPR. 4

- i. ClF_3
- ii. XeF_6

b) What do you know about Buffers? 4

Section-II

Q.No. 5 a) How can you separate noble gases from air by physical means? 4

b) Describe the roles of oxides of nitrogen and sulphur in air pollutants? 4

Q.No. 6 a) Discuss Werner's theory of coordination compounds with its applications? 4

b) Explain $[\text{Co}(\text{NH}_3)_6]^{+3}$ and $[\text{CoF}_6]^{-3}$ complexes on the basis of VBT? 4

Q.No. 7 a) What are inter halogens? Describe their types, preparation, properties and structure of any one? 4

b) Write down the preparation, properties and uses of alums? 4

Q.No. 8 a) Give some important application of noble gases? 4

b) Discuss the important aspects of nomenclature of coordination compounds with examples? 4