



THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions.

(15x2=30)

- a) Give the construction of Standard Hydrogen Electrode (SHE).
- b) What are systematic and random errors?
- c) What are Eigen values and Eigen functions?
- d) State Beer-Lambert's Law.
- e) What is Heisenberg's Uncertainty Principle?
- f) Discuss the cannizarro's reaction as disproportionation reaction.
- g) What are allowed and forbidden transitions in UV Spectroscopy?
- h) State law of mass action. Give its mathematical expression.
- i) "Ketones are less reactive than Aldehydes". Justify the statement by giving suitable example.
- j) State Faraday's first law of electrolysis.
- k) Give basic mechanism of Nucleophilic addition reactions of Aldehydes and Ketones.
- l) Give basic principle of Infrared Spectrophotometry.
- m) What is Wave-particle duality? Which Principle explains it?
- n) Give construction of Calomel electrode.
- o) Give two methods for the preparation of Acid chlorides.

Q.2. Answer the following questions

(6x5=30)

- a) Give important postulates of Quantum mechanics.
- b) Give detailed mechanism for Esterification of Ethanol.
- c) Explain Photoelectric effect and Compton Effect.
- d) Discuss the construction and working of Galvanic Cell.
- e) What is Common ion effect? Give its applications in qualitative inorganic analysis.
- f) What are the necessary conditions of Aldol condensation? Give mechanism of aldol condensation.