



THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions: (15x2=30)

- (i) Write down the balanced chemical equations used in the manufacturing of soda ash by Solvay's process.
- (ii) Briefly describe the method for measurement of setting of cement.
- (iii) You are provided with the following mixtures; which techniques you would use to separate the (i) Soluble solid impurities in water (ii) Organic solvent from water
- (iv) Give two industrial applications of caustic soda.
- (v) Differentiate between sludge and scale.
- (vi) Write down the balanced chemical equations for the preparation of hydrochloric acid.
- (vii) Draw a labelled diagram of diaphragm cell.
- (viii) Define pyrosulphuric acid and write down its chemical formula.
- (ix) Differentiate between evaporation and vaporization.
- (x) What are the water softeners?
- (xi) Write the two mechanical methods for removal of boiler scale.
- (xii) Write down the industrial applications of washing soda.
- (xiii) Write down the different modes of heat transfer and how they differ from each other.
- (xiv) Write down the advantage of 'wet process' over 'dry process' in the manufacturing of Portland cement.
- (xv) Write down role of gas purifier in gas purification during manufacturing of sulphuric acid.

Answer the following questions.

- Q No. 02. (a) Explain the manufacturing of sodium bicarbonate with flow sheet diagram. (06)**
(b) Briefly write down the types of Portland cement and their uses. (04)
- Q No. 03. (a) Write down the reverse osmosis method for softening of water. (06)**
(b) Describe the working principle of tube and shell heat exchanger (04)
- Q No. 04. (a) Write down the process of caustic soda manufacturing by diaphragm cell. (07)**
(b) Describe the process of separation of liquid mixture by fractional distillation. (03)