



THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

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

- (i) Draw a labelled diagram of 'NELSON CELL'.
- (ii) Write down the name of three processes used for the manufacturing of Caustic soda on industrial scale.
- (iii) Write down the industrial applications of washing soda.
- (iv) In summer, water is kept in an earthen pot becomes cool because of the phenomenon of evaporation, how?
- (v) Write down the factors that affect evaporation
- (vi) How 'SETTING TIME' of cement is measured?
- (vii) Differentiate between the sludge and scale.
- (viii) Why the use of natural cement is limited?
- (ix) Write down the advantage of 'wet process' over 'dry process' in the manufacturing of Portland cement.
- (x) What are the water softeners?
- (xi) Write down the balanced chemical equations used in the manufacturing of soda ash by Solvay's process.
- (xii) Write down the principle of 'REVERSE OSMOSIS'.
- (xiii) State any three uses of 'SULFURIC ACID'
- (xiv) Define the term 'CLINKER' in the manufacturing of Portland cement.
- (xv) Give any two methods of measuring 'WATER HARDNESS'.

Answer the following questions.

- Q No. 02 (a)** Write the balanced chemical equations that takes place in the following chambers during the manufacturing of sulfuric acid. (i) Pyrite burner (ii) Contact tower (iii) Absorption tower (iv) Dilution tank. (10)
- Q No. 03 (a)** Write down the role of the following water conditioning products and give two examples of each product (i) Phosphate dispersants (ii) Sequestering agents (iii) Oxygen scavengers (iv) Antifoaming or anti priming agents (10)
- Q No. 04 (a)** Differentiate between 'evaporation' and 'vaporization'. Briefly describe the working principle of the multiple effect evaporator. (5)
- (b) Briefly describe the basic components of the distillation column and its working with the help of a diagram. (5)