

(3 hours)

Marks : 80

N.B.

1. Question No 1 is compulsory
2. Attempt any three questions from the remaining five questions
3. Assume suitable data where ever required
4. Figures to the right indicate full marks

- Q1. a. Explain the principle of sedimentation and the design parameters used. 05
 b. Explain physical, chemical and biological impurities in water. 05
 c. Write a note on rain water harvesting techniques. 05
 d. Write a note on reverse osmosis. 05
- Q2. a. Design a rectangular sedimentation tank to treat 5 MLD of water. Assume data wherever required and check for surface loading and weir loading 10
 b. List the factors affecting the selection of site for intake structure. Also Draw a neat diagram of submerged intake structure. 10
- Q3. a. Explain the process of coagulation and flocculation. Write about coagulant aids. 10
 b. Draw a flow diagram showing sequence of various treatment units with river as a source. List these units sequentially state the function of each unit. 10
- Q4. a. Define and Enlist different methods of water softening. Explain Zeolite process with neat Sketch 10
 b. Explain different methods of disinfection and types of chlorination. 10
- Q5. a. Design a rapid sand filter unit along with under drainage system for population of 200,000 which is to be served by a 200 l/head/day of water supply. Assume all the data and mention the same. 10
 b. What are air pollutants and control measures for gaseous and particulate matter? Mention air quality standards. 10
- Q6. Write short notes on (any four) 05
 a. Noise pollution and control 05
 b. Fixture and Fittings of Building Water Supply 05
 c. Aeration process and types 05
 d. Slow sand filters 05
 e. Water demands 05
 f. Removal of iron and manganese. 05