

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI • EXAMINATION – WINTER • 2014****Subject Code: 160604****Date: 05-12-2014****Subject Name: Water and Waste Water Engineering****Time: 02:30 pm - 05:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain River intake **07**
(b) Draw schematic layout plan of water treatment plant and show different units **07**
- Q.2** (a) Describe rising main and pumping station. Also describe design steps **07**
(b) Explain design criteria for rapid sand filter **07**
- OR**
- (b) The purification plant has estimated 11 mld. Design the dimension of suitable plain sedimentation tank **07**
- Q.3** (a) Explain clariflocculator with sketch **07**
(b) Describe mass curve method to find capacity of elevated service reservoir **07**
- OR**
- Q.3** (a) Explain methods of disinfections **07**
(b) Design sludge digestion tank with following data **07**
(i) Average flow of sewage = 50×10^6 litres/day
(ii) Total suspended solids = 300 mg/l
(iii) Volatile suspended solids = 200 mg/l
(iv) Moisture content = 85%. Assume other data
- Q.4** (a) Explain trickling filter with sketch. Discuss design parameters **07**
(b) Explain Activated sludge digestion process **07**
- OR**
- Q.4** (a) Explain design procedure of septic tank **07**
(b) Explain aerobic attached growth treatment process **07**
- Q.5** (a) Explain sludge drying beds **07**
(b) Describe Grit chamber by giving design criteria **07**
- OR**
- Q.5** (a) With sketch describe different types of sewer **07**
(b) Explain Flash Mixer with sketch. Also discuss design criteria **07**
