

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER- VI (Old) EXAMINATION – WINTER 2019**

**Subject Code: 160604**

**Date: 11/12/2019**

**Subject Name: Water & Waste Water Engineering**

**Time: 02:30 PM TO 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) What are the different types of intakes required for water treatment plant? Explain any one with design criteria. **07**
- (b) What is meant by economical diameter of rising main? Explain factors affecting the selection of pump. **07**
- Q.2** (a) What are the different methods of forecasting population? Explain simple graphical method and comparative graphical method. **07**
- (b) Draw a layout of water treatment plant showing the different treatment units and explain each unit in brief. **07**
- OR**
- (b) What are the advantages of plain sedimentation? Describe circular sedimentation tank with help of neat sketch. **07**
- Q.3** (a) What is filtration process of water treatment plant? Explain theory of filtration. **07**
- (b) Define plain chlorination, post chlorination, super chlorination and dechlorination. Write the various forms of chlorine. **07**
- OR**
- Q.3** (a) Explain different systems of water distribution with help of neat sketch. **07**
- (b) What is sewage? Describe how the quantity of sewage of a city is estimated. **07**
- Q.4** (a) Differentiate between sanitary sewage and storm sewage? Explain variation in sewage flow. **07**
- (b) What is self cleaning velocity? Describe method of designing of sewer. **07**
- OR**
- Q.4** (a) What are the different types of sewer appurtenances? Explain any two in detail. **07**
- (b) Differentiate between screening and skimming. Describe various types of screens. **07**
- Q.5** (a) Write theory of sewage sedimentation. Describe design criteria of sewage sedimentation tank. **07**
- (b) Classify the different type of sewage filters and explain any one with help of neat sketch. **07**
- OR**
- Q.5** (a) What is activated sludge process? Explain aeration units in brief. **07**
- (b) Write short note on low cost sanitation system. **07**

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