Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V • EXAMINATION – WINTER 2013

Subject Code: 153704 **Date: 04-12-2013**

Subject Name: Water and Wastewater Treatment Technologies

Time: 10.30 am - 01.00 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) Draw a neat sketch of water treatment plant and explain the function of each unit **07**

(b) Explain about the exposing of pesticide in environment and their effect on human **07**

Q. 2 (a) Explain the analysis procedure of following parameters in wastewater: **07**
(i) MLSS (ii) Color (iii) BOD

(b) Explain the sources and effects of following parameters in wastewater: **07**
(i) Hardness (ii) Total solids (iii) Organic matter

OR

(b) Enlist the characteristics of water with their permissible value **07**

Q.3 (a) What is meaning of population forecasting and its important for designing of any environmental structure **07**

(b) Explain the terms; **07**
(i) Effective size of sand.
(ii) Sludge loading rate
(iii) Scour velocity

OR

Q.3 (a) Enlist and explain the different types of settling phenomena. **07**

(b) Explain the sedimentation concept and highlight the chief features of each settling zone **07**

Q.4 (a) Prepare a list of different types of chemical coagulants and explain any two along with chemical reactions **07**

(b) Draw a neat sketch of Rapid Sand Filter (RSF) and explain its construction and working **07**

OR

Q.4 (a) Explain the process of disinfection using Chlorine and its compounds. **07**

(b) Write a note on "Intensification of backwashing RSF". **07**

Q.5) (a) Explain the treatment process of ASP (activated sludge process) and draw the neat and clean diagram and also mention the advantages and disadvantages of this system**.** **07**

(b) What are the advantages of anaerobic treatment over aerobic treatment? **07**

OR

Q.5) (a) Describe the usual sources of sludge and the characteristics of sludge generated in a conventional wastewater treatment plant. **07**

(b) A grit chamber has a wastewater depth of 0.9 m. Calculate the time required by a 0.2 mm sand particle to settle at the bottom. Also determine the length of chamber , if the flow through velocity is 0.3m/s. **07**

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