

GUJARAT TECHNOLOGICAL UNIVERSITY
ME - SEMESTER– II(Old course) • EXAMINATION (Remedial) – WINTER- 2015

Subject Code: 1721701**Date: 09/12/2015****Subject Name: Principles Of Wastewater Treatment****Time: 2:30 pm to 5:00 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 physical, chemical and biological characteristics of wastewater treatment. **07**
(b) Explain 1st stage and 2nd stage BOD. Derive the equation for 1st stage BOD. **07**
- Q.2** (a) Explain preservation of samples. Explain the requirement of preservatives for wastewater sample. Also discuss some common preservatives used in sampling. **07**
(b) Describe typical compositions of untreated domestic wastewater. **07**
- OR**
- (b) Write short note on (1) coliform organisms (2) Grab and composite sampling **07**
- Q.3** (a) Enlist and explain different types of reactors used in wastewater treatment and compare each one. **07**
(b) Explain self purification of natural water body? Describe the oxygen sag curve. **07**
- OR**
- Q.3** (a) Draw a complete flow diagram of wastewater treatment plant and describe the functions of its each unit. **07**
(b) What is the function of grit chamber? Describe the functioning of aerated grit chamber with sketch. **07**
- Q.4** (a) Enlist different suspended growth processes and explain the mass balance of microbes for completely mixed reactor. **07**
(b) What do you mean by substrate limited growth? Explain the Monod's kinetic equation schematically. **07**
- OR**
- Q.4** (a) Differentiate: (1) Oxidation ditch and Oxidation pond (2) Nitrification and Denitrification process (3) Neutralisation and Equalisation. **07**
(b) Explain in detail various sludge treatment methods. **07**
- Q.5** (a) With a neat sketch explain the working of Trickling Filter. Discuss the formation of slime layer in it. **07**
(b) With a neat sketch explain Activated sludge process. Explain different modifications in ASP. **07**
- OR**
- Q.5** (a) Explain Reuse of wastewater in detail. Also explain direct and indirect reuse of municipal wastewater. **07**
(b) Write short notes on (1) Nanotechnology in wastewater treatment (2) Green buildings in context to wastewater treatment. **07**
