

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-III (New) EXAMINATION – WINTER 2015

Subject Code:2133505

Date:18/12/2015

Subject Name: Chemistry for Environmental Science & Technology

Time: 2:30pm to 5:00pm

Total Marks: 70

Instructions:

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

		MARKS
Q.1	Short Questions	14
	1 Define: Discrete Particle	
	2 What do you mean by hydraulic subsidence?	
	3 In total count test bacteria are cultivated on the medium of _____	
	4 Describe methods for the removal of permanent hardness from Water.	
	5 Name any two coagulants.	
	6 Define: Disinfection	
	7 List out the names of different forms of chlorination	
	8 During orthotolidin test if a medium yellow color forms in a water sample, then what does it indicates.	
	9 Define Total Dissolved Solids	
	10 List out types of sedimentation tanks	
	11 Write Stokes equation for the velocity of settling	
	12 Define: Transpiration	
	13 Name any one pollutant affecting ozone layer	
	14 Define: Sterilization	
Q.2	(a) Explain Formation and depletion of ozone layer	03
	(b) Explain the method of estimation of NO_x in air sample	04
	(c) Explain Hydrological cycle with a neat sketch	07
	OR	
	(c) Briefly explain the method of estimation of Hardness in a water sample.	07
Q.3	(a) Briefly explain any one method for the removal of Permanent hardness.	03
	(b) Explain the method for the removal of iron and manganese	04
	(c) Briefly explain the method of estimation of Heavy metals in a water sample.	07
	OR	
Q.3	(a) Draw a neat sketch of rectangular sedimentation tank.	03
	(b) Explain Bio accumulation and Bio magnification with an example.	04
	(c) Explain the different types of impurities found in waste water.	07
Q.4	(a) Explain Starch – Iodide test for the detection of residual chlorine.	03

- (b) Write a note on greenhouse effect. **04**
- (c) Briefly explain the method of estimation of Chlorides in a water sample. **07**
- OR**
- Q.4** (a) Briefly explain the method of estimation of TOC in a water sample with a neat sketch. **03**
- (b) Discuss the importance of each unit in water treatment. **04**
- (c) Explain the mechanism for the formation of acid rain. **07**
- Q.5** (a) Explain Total Count test for a water sample. **03**
- (b) Briefly explain the Theory of sedimentation **04**
- (c) Design a sedimentation tank for a water supply scheme which has to supply 1.5×10^6 liters/day of water to a town. Assume detention period as 5 hours, velocity of flow as 20 cm/min, depth of tank as 3 m, allowance for sludge deposition 50 cm. **07**
- OR**
- Q.5** (a) Discuss the Harmful effect of Acid Rain. **03**
- (b) Along with a neat sketch explain the coagulation tank **04**
- (c) Briefly explain the method of estimation of Total solids in a water sample. **07**
