

**GUJARAT TECHNOLOGICAL UNIVERSITY****ME - SEMESTER- I (OLD course) • EXAMINATION – SUMMER 2015****Subject Code: 711702****Date: 12/05/2015****Subject Name: Environmental Chemistry****Time: 10:30 am to 1:00 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)** Short Answer Question **07**
1. What do you mean by Electro negativity?
  2. Explain Second law of Thermodynamics.
  3. What is the best probable degradation of any Organic molecules?
  4. How Biochemical Pesticides work.
  5. Due to high persistence and high potential for creating harm to human and environment which particular pesticides are banned?
  6. Explain the importance of heat of vaporization as per environmental engineers.
  7. Which method is mostly applied to determine the percentage composition of any molecule?
- (b)** Explain in brief the importance of **07**  
 (1) Acidity (2) Alkanity determination (3) Biological Oxygen Demand.
- Q.2 (a)** Define with suitable illustrations the terms primary alcohol, secondary alcohol, and tertiary alcohol, and indicate their relative ease of Biodegradation. **07**
- (b)** Write a note: Eco farming & Eco technology. **07**
- OR**
- (b)** Enlist different types of Aldehydes, Ketones and Esters with their sources and utility and explain their course of degradation chemically as well as biologically. **07**
- Q.3 (a)** Enumerate sources of soil pollution. Discuss effects of modern agro technology. **07**
- (b)** (1) Biological degradation of detergents. **07**  
 (2) Determination of pH and Hardness.
- OR**
- Q.3 (a)** Discuss Enzyme reactions. **07**
- (b)** Explain the standard methods of determination of solids: Total, Dissolved, and Settle able. **07**
- Q.4 (a)** What use is made of the BOD and COD test in water pollution control? List five requirements that must be compiled with in order to obtain reliable BOD & COD data. **07**
- (b)** Enlist different reactions on basis of their speed and velocity and write in detail about consecutive reactions explaining bacterial nitrification of ammonia. **07**
- OR**
- Q.4 (a)** Discuss environmental significance of dissolved oxygen. Write advantages and disadvantages of dissolved oxygen probes have over the Winkler test for DO measurement. **07**
- (b)** Explain in brief any suitable method to determine the presence of Nitrates and Nitrites in surface or ground water. **07**
- Q.5 (a)** Explain Gas Chromatographic method in detail with schematic diagram. **07**
- (b)** Write a note: Macro and micro plant nutrient. **07**

**OR**

- Q.5 (a)** Explain in brief the principle of: **07**  
(1) Polarography (2) Colorimetric (3) Spectrophotometric.
- (b)** Write short note on: (Any Two) **07**  
(i) Surface tension (ii) Osmosis (iii) Dialysis.

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