

**M. SC. (BIOTECHNOLOGY) SEM-III (2012 COURSE)(CHOICE  
BASED CREDIT SYSTEM) : WINTER - 2017  
SUBJECT: ENVIRONMENTAL BIOTECHNOLOGY**

Day: **Tuesday**  
Date: **07/11/2017**

**W-2017-0971**

Time: **10.00 AM TO 01.00 PM**  
Max. Marks: 60

**N.B.:**

- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY.**
- 2) Attempt **ANY TWO** remaining questions from Section-I and Section-II each.
- 3) Answers to both the sections should be written in the **SEPARATE** answer book.
- 4) Figures to the right indicate **FULL** marks.

**SECTION-I**

- Q.1** Answer Any **FIVE** of the following questions in brief: **[10]**
- a) Mention any four methods of water pollution monitoring.
  - b) Enlist various sources of soil pollution.
  - c) Differentiate primary and secondary air pollutants.
  - d) How can we detect the microorganisms in the environment?
  - e) What is biofilm? How it develops?
  - f) Enlist various types of reactors used in waste water treatment.
- Q.2** Answer the following questions: **[10]**
- a) Describe the overview drinking water standards in relation to public health.
  - b) Briefly describe the sources of noise pollution and explain their effects and controlling measures
- Q.3** Explain the following: **[10]**
- a) What do you mean by Xenobiotic compounds? Mention the alternatives for their degradation.
  - b) Discuss the development and optimization of membrane bio-reactor in the treatment of industrial effluent.
- Q.4** Write short notes on **ANY TWO** of the following: **[10]**
- a) Microbes in waste water treatment
  - b) Activated sludge process
  - c) Types of biosensors and their application

**SECTION-II**

- Q.5** Answer the following: **[10]**
- a) Define acid rain. Write about the causes and effects of acid rain.
  - b) Discuss the significance of techno-economic feasibility of conversion of waste in to energy.
- Q.6** Answer **ANY TWO** of the following: **[10]**
- a) Describe the methods of composting of solid waste.
  - b) Discuss quality of input and output water for reverse osmosis.
  - c) What is meant by carbon credit? Discuss various methods of carbon crediting.
- Q.7** Write short notes on the following: **[10]**
- a) Vermicomposting
  - b) Ozone depletion
- Q.8** Answer the following: **[10]**
- a) Discuss the merits and demerits of bioremediation.
  - b) Write the significance of climate change process and mention various application for its prevention.