

Seat No. : _____

MP-135

March-2019

B.Sc., Sem.-VI

310 : Biotechnology (Environmental Biotechnology)

Time : 2:30 Hours]

[Max. Marks : 70

1. (A) Explain with diagrams the process treatment of waste water. 14

OR

(1) Explain the treatment of solid waste materials by landfills. 7

(2) Describe the procedure for detection of coliform bacteria in drinking water. 7

(B) Answer the following in brief : (Any **Four**) 4

(1) Define Activated-sludge process.

(2) What are the consequences of disposing untreated waste water into water bodies ?

(3) List steps of municipal water purification process.

(4) Give full name of IMViC test.

(5) What is Zooglear film.

(6) What is meaning of 'Oxygen Demand' for waste water ?

2. (A) Define bioremediation and explain the microorganisms involved and applications. 14

OR

(1) Write note on bio-deterioration of materials. 7

(2) What is biodegradability ? Explain xenobiotic compounds with examples. 7

(B) Answer the following in brief : (Any **Four**) 4

(1) Define bio-magnification.

(2) What is bioventing ?

(3) Enlist the approaches for abatement of hazardous wastes.

(4) Name bacteria patented for the treatment of oil spills by Anand Chakraborty ?

(5) Name two biological pesticides used in India.

(6) What are recalcitrant compounds ?

3. (A) Explain the principle of bioleaching and explain its use in recovery of metals. **14**

OR

(1) Describe production of Methane for fuel. **7**

(2) Explain process and need for desulfurization of coal. **7**

(B) Answer the following in brief : (Any **Three**) **3**

(1) Enlist the various methods of bioextraction.

(2) Name the bacteria suitable for microbially enhanced recovery of oil.

(3) Which are the essential components for the bioproduction of Hydrogen fuel ?

(4) Give biotechnological use of cellulose and lignin.

(5) Draw the diagram of Heap-percolation for leaching.

4. (A) Enlist global environmental issues and explain any three in detail. **14**

OR

(1) Describe the elements and process of risk assessment. **7**

(2) Explain means for microbial control of insects and pests. **7**

(B) Answer the following : (Any **Three**) **3**

(1) Define sustainable development.

(2) Which radiations are harmful to human beings ?

(3) What is ISO-14000 ?

(4) What are algal blooms ?

(5) How sea-weeds are harmful ?
