(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 154612 Roll No. | | | | | | | | | |

B.TECH.

Theory Examination (Semester-VI) 2015-16

ENVIRONMENTAL BIOTECHNOLOGY

Time : 3 Hours *Max. Marks : 100*

Section-A

Q.1 Attempt all parts. All parts carry equal marks. Write answer of each part in short. (2×10=20)

(a) Define the term pollution and its types.

(b) How do rotatory biological reactors work?

(c) What do you understand by the term Solid waste Management?

(d) Define the term Biomarkers and Bio-indicators.

(e) What the factors that affect the anaerobic process?

(f) Name the devices that are used for the control of air pollution.

(g) What are biodegradable wastes? Write few' examples.

(h) What are the necessary steps involved in the efficient degradation of waste material?

(i) Explain the terms Microorganisms Ratio and Sparging Time.

(j) Define the term methanogenesis and activated sludge.

Section-B

Q2. Attempt any five parts. All parts carry equal marks: **(5×10=50)**

(a) What are the harmful effects of air and water pollution on ecosystem?

(b) What are tickling filters? Describe them with the help of a suitable diagram and also write the formation of biofilms over trickle beds.

(c) Name some important alternative fuels that are renewable sources of energy. Explain in brief.

(d) Describe the various physical, chemical and biological characteristics of waste water.

(e) How can you enhance the efficiency of an activated sludge process. Write basically its modifications.

(f) Name the various bacterial species and classes present in the sewage effluent.

(g) What is the thermal conversion of solid waste? Is this process safe for the environment?

(h) What are steps involved in the primary treatment of waste water.

Section-C

Note: Attempt any two questions from this section. **(2×15=30)**

Q3. Estimation of total volatile components and lignin in a given known sample.

Q4. "Activated sludge process is an aerobic biological process in the treatment of waste water". Explain in detail w'ith significant diagrams and the growth kinetics involved.

Q5. (a) What are the various efficient steps towards management of solid w'aste. Also write about the bioreactbrs w'hich help in this process.

(b) Give details of thermal and biological conversion of solid waste.