Printed pages: 02 **Sub Code: NEV 013**

Paper Id: 197613 **Roll No:** | | | | | | | | | | |

B. TECH.
(SEM-VI) THEORY EXAMINATION 2017-18
ENVIRONMENTAL BIOTECHNOLOGY

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x10 = 20

a. Define environment.
b. Enlist the various types of pollutant.
c. How is packed bed reactor different from UASB reactor?
d. What is fluidized bed reactor?
e. What is codon and anti-codon?
f. Highlight the DNA structure and base pairing.
g. Classify biofilters.
h. What are the general characteristics of waste water?
i. Mention the pros and cons of using air lift bioreactor.
j. What is the role of earthworms in vermitechnology?

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 10

a. Describe trickling filters with its key role in biological treatment.
b. Describe the microbiology and processes involved in the bioremediation of hydrocarbons.
c. What are the various possible ways to utilize bio-technology to reduce CO_2 emissions?
d. 'Bioremediaton means giving nature a helping hand'. Comment on this statement.
e. Explain the meaning of equitable use of resources for sustainable life style. Discuss the challenges to sustainable development.

SECTION C

3. Attempt any *one* part of the following: 10 x 1=10

(a) How would you solve the air pollution issues in an industrial zone?
(b) Elaborate how trickling filters can be used to treat wastewater with simple diagram.

4. Attempt any *one* part of the following: 10x 1= 10

(a) What is environmental biotechnology and state its role in pollution in pollution management.
(b) What does activated sludge and biofilm mean? Explain in detail.

5. Attempt any *one* part of the following: 10 x 1= 10

(a) How can you classify waste on the basis of degradation capability?

(b) How would you solve the air pollution issues in an industrial zone?

6. Attempt any *one* part of the following: 10 x 1= 10

(a) Discuss the role of government and legal aspect in environmental protection.

(b) What are the different growth kinetic phases of micro-organisms in an ASP?

7. Attempt any *one* part of the following: 10 x 1= 10

(a) How can you convert the degradable organic waste into utilizable products? Explain in detail.

(b) Explain the detoxification in detail.