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B. TECH.

(SEM-VI) THEORY EXAMINATION 2017-18

ECOLOGICAL & BIOLOGICAL PRINCIPLES & PROCESS

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 ecosystem.
- b. Write short note on tropic level.
- c. What is food chain? Explain with example.
- d. Define food web.
- e. Write short note on balanced ecosystem.
- f. What are various parameters of fresh ground water?
- g. Describe various components of environment.
- h. Differentiate between pure and mixed cultures.
- i. Explain the term microbial growth.
- j. Define enzyme.

SECTION B

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

- a. Explain in detail about any two methods exploited for microbial characterization.
- b. Discuss the role and importance of microorganisms in the waste assimilation.
- c. What is a landfill? Elucidate in detail about the specifications of landfill.
- d. Illustrate the process of microbial cellular respiration and photosynthesis.
- e. Elucidate the long range changes in an ecosystem with examples.

SECTION C

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

- (a) Explain in detail about any two methods exploited for microbial characterization.
- (b) How does the biomass and energy vary in the higher trophic levels?

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

- (a) Represent the microbial growth curve of a simple batch Culture.
- (b) Explain the various phases of microbial growth phases with relevant equations.

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

- (a) What are the factors required for shaping microbial community structure? Explain in brief the various types of interactions among species.
- (b) Give the principles of carbon oxidation.

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

- (a) What are the three stages of glycolysis and stepwise reactions involved in the glycolysis?
- (b) Explain the standards of microwaving and deep burial in case of bio-medical waste.

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

- (a) Explain in detail about any two methods exploited for microbial characterization.
- (b) "Storage of petroleum products is a challenge.", Justify it.