

2063

B.E. (Bio-Technology) Seventh Semester
BIO-711: Environmental Biotechnology

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Section. .

x-x-x

1. Write briefly:

(1×10 = 10)

- a) What are the environmental conditions which affect bioremediation?
- b) What is proportional weir?
- c) Differentiate BOD and COD.
- d) Why we need to know TDS of water?
- e) What is DO deficit?
- f) What do you understand by sludge conditioning?
- g) What is the environmental effect of ozone layer depletion?
- h) Define neutralization, equalization and proportioning.
- i) Name few organism involved in desulfurization of coal.
- j) What is incineration?

SECTION-A

2. A) Compare the principles of aerobic and anaerobic waste water treatment processes. What is the difference with respect to COD balance?
B) Explain conventional activated sludge process along with diagram. Why is it known as activated sludge?

(5, 5)
3. A) Explain the importance and methodology of composting and landfilling in waste disposal.
B) In addition to a grit chamber, what is the necessity of keeping a primary sedimentation tank? What are the major differences in between their mode of action?

(5, 5)
4. A) What are the design considerations of UASB? Explain with diagram. How will you calculate total height of a UASB?

ContdP/2

(2)

B) Explain the working of septic tank. Design a septic tank for a population of 300 person. Assume sewage flow 250 // capita/ day and sludge contribution is 80 // capita/ year and tank is desludged once in 5 years. (5, 5)

SECTION-B

5. A) What are the engineered systems for solid waste management?

B) Write short notes, i) Management of hazardous waste, ii) Desulfurization of coal

(5, 2.5, 2.5)

6. A) How microbes are utilized for recovery of oil?

B) Biomining is no longer a promising technology but an actual economical alternative for treating specific mineral ores. Justify the statement.

(5, 5)

7. Write short notes on,

i) DNA microarray for analysis of environmental sample

ii) Compare between TGGE and DGGE.

(5, 5)