B. TECH.

(SEM. VI) EXAMINATION, 2006-07

BIOTECHNOLOGY OF WASTE TREATMENT

Time : 3 Hours] [Total Marks : 100

Note : (1) Attempt all questions.
       (2) All questions carry equal marks.

1. Attempt any two parts of the following : 10×2=20
   (a) Describe bioprocess kinetics and its application to waste treatment.
   (b) Discuss operational features of trickling filters.
   (c) Describe secondary treatment through rotating biological contractors.

2. Attempt any two parts of the following : 10×2=20
   (a) Describe working of stabilization ponds with its merits and demerits.
   (b) Enumerate relationship between the cell age and food to microorganism ratio for activated sludge process.
   (c) Describe operation and control of activated sludge process with its advantages and disadvantages.
3 Attempt any two parts of the following: \(10 \times 2 = 20\)

(a) Explain various anaerobic treatment systems used for wastewater treatment.

(b) What do you mean by high rate digestion of sludge? Explain working of a high rate digester with its merits and demerits.

(c) Describe heat transfer in digestor and explain its role in sludge digestion.

4 Attempt any two parts of the following: \(10 \times 2 = 20\)

(a) Describe new developments in anaerobic treatment systems and its merit over old anaerobic treatment systems.

(b) Explain working of UASB. Write down its advantages and limitations.

(c) Explain any one method used for phosphorous removal from wastewater.

5 Attempt any two parts of the following: \(10 \times 2 = 20\)

(a) Write down various points of wastewater generation in a sugar industry. Suggest treatment and disposal of wastewater in a sugar industry.

(b) Describe treatment process of wastewater being generated in an antibiotics industry with flow diagram.

(c) Write down general characteristics of wastewater generated in a brewery. Based on these characteristics, suggest its treatment and disposal.