



Printed Pages : 2

TCA – 602

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

PAPER ID : 3103

Roll No.

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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 : **10×2=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 digester and explain its role in sludge digestion.
- 4** Attempt any **two** parts of the following : **10×2=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 : **10×2=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.
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