

Total number of printed pages-4

53 (FPT 501) FIWM

2019

**FOOD INDUSTRY WASTE  
MANAGEMENT**

Paper : FPT 501

Full Marks : 100

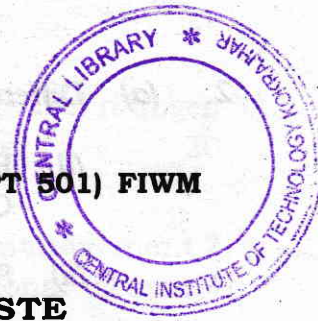
Time : Three hours

***The figures in the margin indicate  
full marks for the questions.***

*Answer any five questions.*

1. (a) Name *any five* sub-sectors of food processing industry and enlist various kinds of wastes generated in those industries. 5
- (b) Write briefly on the various components of wastes in general. 9
- (c) Classify the wastes based on different categories and give examples for each of them. 6

*Contd.*



2. (a) Differentiate between : 2×5

(i) Biochemical oxygen demand and Chemical oxygen demand

(ii) Settleable suspended solids and Colloidal suspended solids

(iii) Fixed growth process and suspended growth process

(iv) Coagulation and Flocculation

(v) Waste prevention and waste minimization.

(b) What is algal bloom and what causes them ? 2+1

(c) What is flow equalization ? What are the objectives of flow equalization tank in food processing industries ? Enlist two advantages and disadvantages of flow equalization. 1+2+4

3. Describe the working process of trickling filter technique in biological treatment of wastewater with a neat diagram. Mention some advantages and disadvantages of this process. 10+5+5

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4. Discuss the processes for removal of nitrogen from food industry wastewater. 20

5. (a) What is solid waste management ? Explain the basic functional elements of solid waste management system. 1+5

(b) Briefly describe any one method of thermal connection process of solid waste. 10

(c) What are leachate and landfill gas ? 4

6. List out the major sources of wastes from fruits and vegetables processing industries. Write about the utilization of solid wastes from fruits and vegetables processing industries for the production of by-products. 5+15

Or

What are the major wastes arised from dairy processing industry ? How did the wastes arise and what are the possible utilization of those wastes ? 5+15

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Contd.

7. (a) Give reasons why: 5×3

(i) "Wastes are a valuable resources."

(ii) Characterization of process water and wastewater is necessary.

(iii) It is necessary to digest/treat the sludge generated from wastewater treatment plant before disposal.

(b) How does rotating biological contactor differ from anaerobic rotating biological contactor? 5

