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)* Define Waste. How can a food processing industry prevent the generation of wastes? 2+5=7

   (b) Describe the various source of wastes in food processing industry. 5

   (c) "Management of wastes of food processing industries is relatively easy"— Justify the statement with examples. 8

Contd.

2. *(a)* What is the aim of preliminary treatment of wastewater treatment process? Explain the unit operations involved in preliminary treatment. 1+6=7

(b) Discuss the water quality parameters of wastewater. 10

(c) What are hazardous wastes? What are their impacts on health? 1+2=3

3. *(a)* What is primary wastewater treatment? Describe the processes under primary wastewater treatment. 2+8=10

(b) Describe the activated sludge process (ASP) with proper diagram. What are the advantages and disadvantages of ASP? 6+4=10

4. Write short notes on : 5×4=20

(a) Trickling filters

(b) Rotating biological contactors

(c) Aerated lagoons

(d) Up-flow anaerobic sludge-blanket process.

5. *(a)* What are sludge, primary sludge, secondary sludge and tertiary sludge? Describe the processes for reducing the volume of sludge. 4+6=10

(b) What is sludge digestion? Discuss the anaerobic sludge digestion process. State their advantages and disadvantages. 1+5+4=10

6. *(a)* Describe the vermicomposting technique. 14

(b) Which category of earthworm is most favoured for vermicomposting? 2

(c) Write *four* properties of vermicomposting as an ideal fertilizer. 4

7. *(a)* What are the major important by-products from grain processing industry? Discuss their utilization. 10

(b) What is molasses? What are the different fermention products produced from molasses? 1+5=6

(c) Differentiate between : 2×2=4

(a) Incineration and Pyrolysis

(b) Aerobic composting and anaerobic composting.
