

Total number of printed pages-3

53 (FPT 702) FPED

2021

(Held in 2022)

FOOD PROCESS EQUIPMENT DESIGN

Paper : FPT 702

Full Marks : 100

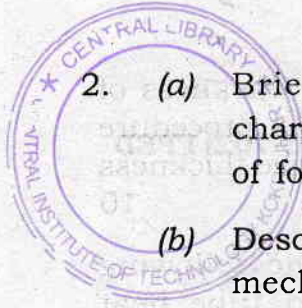
Time : Three hours

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

1. (a) Explain the properties of following materials which are used in construction of a food equipment :
6+4=10
 - (i) Steel
 - (ii) Plastics.

- (b) Discuss about the different stresses which influence the strength of food processing equipment and mention the preventive measures also. 10

Contd.



2. (a) Briefly elaborate the construction characteristics involved in the selection of food processing equipment. 10
- (b) Describe in brief about the working mechanism of pneumatic conveying systems. 10
3. (a) Provide the schematic diagrams of segmented belt conveyor, screw conveyor and chain conveyor. 6
- (b) Briefly discuss about the working principle of chain conveyor with schematic diagram. 8
- (c) Provide a short note on the working mechanism of vibratory conveyors. 6
4. (a) What is a heat exchanger ? How are heat exchangers classified ? 6
- (b) Give a detailed schematic representation of shell and tube heat exchanger. 6
- (c) Discuss in brief about the basic components/basic structure of plate-type heat exchangers. 8

5. (a) Define the term, effective thickness of tube sheet and explain the procedure for the calculation of effective thickness of tube sheet. 10
- (b) Write short notes on the following components of shell and tube heat exchangers : 5+5=10
- (i) Baffles and Tie rods
- (ii) Shell-side and tube-side passes.
6. (a) Provide the schematic diagrams of cylindrical separators and rotating disk separators. 4
- (b) Define the term 'Grading' and discuss briefly about hand grading process. 8
- (c) Explain the working principle of screening cloths, magnetic separators and electrostatic separators. 2+3+3=8
7. (a) Write a brief note on the designing of different types of heads or covers for pressure vessels. 10
- (b) Briefly explain about the uses of different types of nozzles in the construction of pressure vessels. 10

