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**MFT-003**

00184

# P.G. DIPLOMA IN FOOD SCIENCE AND TECHNOLOGY (PGDFT)

## Term-End Examination

## December, 2017

## MFT-003 : FOOD PROCESSING AND ENGINEERING

*Time : 3 hours* *Maximum Marks : 70*

***Note :*** *(i) Attempt any five questions.*

*(ii) All questions carry equal marks.*

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**1.** Explain the following terms (any seven). **7x2=14**

(a) Coefficient of friction
(b) Thermal diffusivity
(c) Third law of thermodynamics
(d) Fumigation
(e) Screw conveyors
(f) Emulsification
(g) Microwave heating
(h) QACs
(i) Hurdle Technology

**2.** (a) Define angle of repose and its application in various processing operations. **4**

(b) Explain thermal conductivity and how it is measured ? **5**

(c) Define 'Energy balance' and explain different modes of energy in "energy balance process". **5**

3. (a) Tomato juice flowing through a pipe at the rate of 60 kg / min is salted by adding saturated salt solution (26% salt) to the pipe. Calculate the amount of salt solution to be added for producing 2% salt in the product. 6

(b) Write the mathematical expressions of all the weirs to calculate the discharge. 3

(c) Orange juice is flowing from the extractor to the storage tank through an open channel having the rectangular cross-section. The width of the channel is 10 cm and flow height is 10 cm. A float took 60s to travel 20m distance. Calculate the rate of discharge. 5

4. (a) Enumerate important factors. Which must be considered for cooling load calculation of a cold storage ? 5

(b) Describe various feeding and discharge methods available in bucket elevators. 6

(c) Differentiate between the utilities of low lift and high lift trucks. 3

5. (a) Enumerate important cleaning methods used for cleaning of agriculture produce. 4

(b) Explain screening of grains and important factors affecting the performance of screens. 6

(c) Describe salient features of "Grading of Foods". 4

6. (a) Explain 'size reduction' of food and enumerate size reduction equipment for dry foods and fibrous foods. 6

(b) Describe the machines used for size reduction of liquid foods. 8

7. (a) Explain the salient features of microwave heating. 5

(b) Describe the operational aspects of Blast Freezer. 4

(c) Explain the principle of High Pressure Processing and its effects on microorganisms, enzymes and food components. 5