

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

Term-End Examination

December, 2016

**MFT-003 : FOOD PROCESSING AND
ENGINEERING**

Time : 3 hours

Maximum Marks : 70

- Note :** (i) *Attempt five questions in all.*
(ii) *Question no. 1 is compulsory.*
(iii) *All questions carry equal marks.*

- 1. Fill in the blanks : 14x1=14**
- (a) Photographic projector is used to measure area of _____ and stalk.
 - (b) Enthalpy is total _____ of a material.
 - (c) _____ is the ratio of inertial forces to viscous forces.
 - (d) In metallic solids, thermal conduction results from the motion of _____.
 - (e) Normal air has _____% oxygen.
 - (f) _____ trucks transport packaged foods stacked over pallets.
 - (g) The _____ consists of a grid made up of metal bars built on a slope.
 - (h) _____ technique is used for peeling of onions and peppers.
 - (i) Closed circuit operation is used for reduction to _____.

- (j) _____ is a device for centrifugal separation without a mechanical centrifuge.
- (k) In _____ method, products are free of chemical residue.
- (l) Canning is a process in which food materials are _____ sealed.
- (m) Particles are separated on the basis of size and _____ in membrane filtration.
- (n) _____ are soluble complexes of iodine combined with non-ionic surface active agents.

2. Differentiate between the following : 7x2=14

- (a) Chlorine and Iodophors sanitizing agents
- (b) Ohmic heating and pulsed electric field
- (c) Hammer mill and Ball mill
- (d) Tubular and Decanter centrifuges
- (e) Pallet trucks and high lift trucks
- (f) Flame peeling and Abrasion peeling
- (g) Vibratory screen and Rotary screen

3. Write short notes on the following : 4x3.5=14

- (a) Ultrasonic cleaning
- (b) Zeroth law of thermodynamics
- (c) Mechanism of Mechanical expression
- (d) Objectives of plant layout

- 4. (a) Define extrusion cooking. 2
- (b) What are different types of extrusion? Give their advantages and disadvantages. 2+2+2=6
- (c) What do you understand by the term expression? 2
- (d) Write down various application of expression in food processing. 4

5. (a) Write down the principle for the following processing technique : 4x2=8
- (i) Basket Centrifuge
 - (ii) Low temperature freezing
 - (iii) Reflectance Sorting
 - (iv) Surface filtration
- (b) Define Angle of Repose, True density and Thermal Conductivity. 3x2=6
6. (a) List down the different modes of heat transfer. Explain their characteristics. 2+4=6
- (b) What is Fourier's Law ? Derive its equation. 2+4=6
- (c) What is plunger pump ? 2
7. (a) How many kgs of a solution containing 10% NaCl can be obtained by diluting 15 kg of 20% solution with water ? 4
- (b) What are advantages and disadvantages of product plant layout as compared to process layout ? 5
- (c) What are the general and important guidelines for designing meat processing plant layout ? 5
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