

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

Term-End Examination

December, 2011

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

Time : 2 hours

Maximum Marks : 70

Note : *Attempt any five questions. Each question carry equal marks.*

1. What is the basic principle of material balance, 4+10
write in your own words ? Draw a diagram and
setup equations representing the total mass
balance for a system involving the mixing of
component A (15% protein, 20% fat and 63%
water) and component B (15% water, 80% fat and
30% protein) to make 100 kg of product with
25% fat.

2. (a) Describe following heat transfer mechanisms : 8
Heat Transfer by conduction, Natural
convection, Forced convection and
Radiation.
(b) Establish equation for unidirectional steady 6
state heat transfer through slab.

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| 3. | (a) | Differentiate cleaning, sorting and grading operations of primary processing | 9 |
| | (b) | Write your understanding and food application of CA/MA storage. | 5 |
| 4. | | Why food material are put to size reduction ? How do hardness, structure and moisture content affect the method of size reduction ? | 14 |
| 5. | (a) | Draw a layout of a dairy plant producing milk powder. | 7 |
| | (b) | Write a brief note on hurdle technology and high pressure technology of food processing. | 7 |
| 6. | (a) | Describe commercial sterility concept adopted in foods. | 10 |
| | (b) | Explain D - value and Z - value used in thermal process calculations. | 4 |
| 7. | (a) | Discuss different freezing techniques along with a note on freezing time calculations. | 7 |
| | (b) | Discuss wet and dry methods of cleaning along with their limitations and advantages. | 7 |