

02169

**MASTER OF SCIENCE (DIETETICS AND FOOD SERVICE MANAGEMENT)**

**Term-End Examination**

**December, 2012**

**MFN-008 : PRINCIPLES OF FOOD SCIENCE**

*Time : 2½ hours*

*Maximum Marks : 75*

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*Note : Answer four questions in all. Question No. 1 is compulsory.*

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1. (a) Explain what happens when : 2x5=10
- (i) Spinach is boiled in water
  - (ii) Eggs get spoiled
  - (iii) Browning takes place on the surface of cut fruit
  - (iv) Egg white is whipped
  - (v) Starch solution is cooked
- (b) State *true* or *false* : 1x5=5
- (i) Smoking is a method of food preservation mainly used for milk and milk products.
  - (ii) The process of loss of liquids from gels causing their shrinkage is called Gelation.

- (iii) A chemical preservative is a substance when added to dough of flour and water causes it to rise by evolving  $\text{CO}_2$  and other gases.
  - (iv) Blanching is a mild heat treatment applied to plant parts prior to freezing drying or canning.
  - (v) Fortified food is a food that has a component incorporated into it to give a specific medical physiological benefit, other than a purely nutritional benefit.
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- 2. (a) What is a single cell protein ? Discuss advantages of selecting micro organisms as a source of proteins. **10**
  - (b) What is Rheology of foods ? What are the different textural parameters observed in foods ? **10**
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- 3. (a) Describe various properties of colloidal systems. **8**
  - (b) What is food spoilage ? Describe the causes of food deterioration / spoilage. **6**
  - (c) What are non - starch polysaccharides and how are they important in food industry ? **6**

4. Differentiate between *any four* of the following : 5×4=20
- (a) Natural gums and modified gums
  - (b) Enzymatic browning and non - enzymatic browning
  - (c) Cryogenic freezing and air blast freezing
  - (d) Sols and suspensions
  - (e) Taste interaction and Taste threshold
  - (f) Natural preservatives and chemical preservatives.
5. (a) Describe various methods of preserving meat, fish and poultry products. 10
- (b) Briefly discuss the food application of gums in food industry. 5
- (c) Explain the principle behind dough formation. 5
6. (a) Explain how the process of drying helps in preservation of food. Also discuss different methods of drying 12
- (b) Discuss the role of fermentation in food preservation by giving examples of fermented food. 8

7. Write short notes on *any four* of the following : 5x4=20
- (a) Protein Isolates
  - (b) Need for product development
  - (c) Lipid oxidation
  - (d) Importance of Iron and Calcium in food
  - (e) Shelf life of foods
  - (f) Modified starches
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