

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

**Term-End Examination**

**December, 2016**

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

*Time : 2½ hours*

*Maximum Marks : 75*

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- Note :** (i) *Question No. 1 is compulsory.*  
(ii) *Attempt five questions in all.*  
(iii) *All questions carry equal marks.*
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1. (a) Give **one word** for the following : **10**
- (i) Modification of starch structure by physical and chemical means to attain a particular functional property.
  - (ii) An additive that promotes formation of a stable mixture or emulsion of oil and water.
  - (iii) Loss of liquid from gel upon standing and shrinkage of gel structure.
  - (iv) Resistance to flow of liquids.
  - (v) The pH of a solution in which a protein has no net charge and does not migrate in an electric field.
  - (vi) A process of preserving foods by sealing and heat processing in an air tight vacuum container.
  - (vii) Development of any off or disagreeable flavour in oil/fat due to enzymatic or oxidative reaction.

- (viii) A fast and a cheap method of freezing in which liquified gases at an atmosphere below  $-60^{\circ}\text{C}$  are placed in direct contact with the foods.
- (ix) The process where seeds sprout and begin to grow.
- (x) Ratio of vapour pressure of food to vapour pressure of pure water.
- (b) Explain briefly the following :  $2\frac{1}{2}\times 2=5$
- (i) Classification of types of water found in food
- (ii) Sensory Evaluation of food
2. (a) What are food emulsions ? Give examples of various food emulsions and how are these stabilized ? 10
- (b) Explain briefly the principles of food preservation. 5
3. (a) Describe the process of starch gelatinization and retrogradation. 7
- (b) List various functions of starches and their applications in food industry. 8
4. (a) What do you understand by the term Pasteurization ? Also explain the types of Pasteurisation. 7
- (b) How is the harvesting maturity identified ? List the main steps involved during post-harvest handling of fresh produce. 4+4
5. (a) What is the role of Acceptance testing in sensory evaluation ? State different types of Acceptance tests. 8
- (b) What is product development ? List the need and factors influencing product development. 7

6. (a) Enumerate the functions of colours in foods. 5  
(b) Describe the use of enzymes in :  $2\frac{1}{2} \times 4 = 10$
- Baking of bread
  - Brewing
  - Clarification of fruit juices and wines
  - Cheese production
7. Explain briefly any five of the following :  $5 \times 3 = 15$
- (a) Process of gelation in eggs.
  - (b) Softening and hardening of Legumes during cooking.
  - (c) Cooked flavour in milk on heating and other changes.
  - (d) Formation of emulsion in preparation of mayonnaise.
  - (e) Increased shelf life of dried vegetables.
  - (f) Use of whey protein concentrates in preparation of ice cream, processed cheese, sauces and salad dressings.
  - (g) Conditioning of wheat prior to process of milling.
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