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MFN-008

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

M. SC. (DFSM)

Term-End Examination

December, 2022

MFN-008 : PRINCIPLES OF FOOD SCIENCE

Time : $2\frac{1}{2}$ Hours

Maximum Marks : 75

***Note :** Answer **four** questions in all. Question number 1 is compulsory.*

1. (a) Define product development. 2
- (b) List any *five* pre-preparation methods of food processing. $2\frac{1}{2}$
- (c) What do you understand by the term 'Turnover Rate' in the context of frying oil ? 2
- (d) Define the term 'Starch Retrogradation'. 2
- (e) What is Pectin ? List any *two* food applications of pectin. $2\frac{1}{2}$

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- (f) Name the enzymes that are used in the following :
- (i) Brewing 2
 - (ii) Clarification of fruit juices 2
2. (a) “The presence of carbohydrates in foods is closely connected with the browning reactions occurring in foods during processing.” Comment on the statement, highlighting the two major browning reactions occurring in foods. $7\frac{1}{2}+7\frac{1}{2}$
- (b) What are microbial polysaccharides ? Give examples and list few food applications of these polysaccharides. 5
3. (a) Briefly explain the emulsifying, foaming and binding of flavour properties of proteins. 10
- (b) What are antioxidants ? Briefly discuss their protective role in the context of fats and oils, giving examples of some commonly used antioxidants in the food industry. 7
- (c) What is rancidity ? How do antioxidants delay the onset of rancidity ? 3

4. (a) Discuss briefly the application of enzymatic analysis in the food industry giving appropriate examples. 8
- (b) Enlist the main taste sensations which taste buds register and the chemicals/substances responsible for these basic tastes. 5
- (c) Briefly explain the factors affecting taste quality. 7
5. Briefly explain the changes occurring during the following : 4+4+4+4+4
- (a) Baking of cereals
- (b) Reversion flavour of oils
- (c) Heat processing of fish
- (d) Maillard reaction occurring in egg white and egg yolk
- (e) Cold-shortening of meat

6. (a) Present a brief write-up on the methods and techniques of drying used at home and commercially. 7
- (b) Briefly explain how 'Freezing' as a method is used for food preservation. Highlight some of the important freezing systems used in the food industry. 7
- (c) What are the types of fermentation and fermented foods used in our daily life ? Enumerate. 6
7. Write short notes on any *four* of the following :
5+5+5+5
- (a) Major modes of food deterioration
- (b) Methods of shelf-life examination
- (c) Importance of functional foods in new product development
- (d) Properties of colloidal systems
- (e) Applications of vitamins in the food industry