

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

Term-End Examination

December, 2011

MFN-003 : FOOD MICROBIOLOGY AND SAFETY

Time : 2½ hours

Maximum Marks : 75

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

1. (a) Give one example for each of the following: 5
- (i) Bacteria commonly found in contaminated milk.
 - (ii) Term used for bacteria which can survive either in presence or absence of oxygen.
 - (iii) An antioxidant which is permitted to be added to edible oils in India.
 - (iv) Toxin produced by *Aspergillus flavus*
 - (v) Pink colour in the acid layer of a mixture of ghee, hydrochloric acid and furfural indicates presence of this adulterant
- (b) Explain the following terms in 2-3 lines : $5 \times 2 = 10$
- (i) Prions
 - (ii) Ergotism
 - (iii) Technical Barriers to Trade (TBT)
 - (iv) Acceptable Daily Intake
 - (v) Sanitizers

2. (a) List the general principles of Risk Management. 5
- (b) Describe the various methods of packaging employed in the food industry. 8
- (c) Enlist the principles and benefits of HACCP. 7

3. (a) Discuss the different factors which affect the growth of micro-organisms in foods. 10
- (b) What are the basic safety criteria to be considered while selecting equipment and utensils for a food service establishment ? 10

4. (a) What is acrylamide ? Is it harmful ? Why ? 5
- (b) Discuss the harmful effects of adulterants in foods. 10
- (c) What do you know about the Fruit Products Order ? Explain giving examples. 5

5. (a) What are Dioxins ? What threat do they pose to our health ? 5
- (b) What are artificial sweeteners ? Which are the artificial sweeteners permitted for use in India ? 5
- (c) What are the toxicants present in plant foods ? Discuss briefly. 5
- (d) Give some preventive measures for pest and rodent control in a food service establishment. 5

6. (a) Discuss the role of micro-organisms in the production of different types of fermented foods. 8
- (b) Discuss the hazard posed by environmental contaminants in foods. 7
- (c) What are the chemical changes that take place in food due to spoilage ? 5
7. Write short notes on *any four* of the following :
- (a) GM foods. 5+5+5+5
- (b) Functional role of food additives.
- (c) Naturally occurring toxicants in animal foods.
- (d) Food safety measures for street foods.
- (e) Health status of food handlers.
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