

MASTER OF SCIENCE (DIETETICS AND FOOD SERVICE MANAGEMENT)

Term-End Examination

December, 2015

MFN-003 : FOOD MICROBIOLOGY AND SAFETY

Time : 2½ hours

Maximum Marks : 75

Note : Attempt any four questions in all. Question no. 1 is compulsory.

1. (a) Match the items in column A with the items in column B. 1x5=5

Column-A		Column-B	
(i)	MAP	(A)	Lactobacillus bulgaricus
(ii)	Yoghurt	(B)	Carbonates of Calcium
(iii)	Epidemic Dropsy	(C)	Urea
(iv)	Anti-caking agent	(D)	Argemone mexicana
(v)	Milk	(E)	Packaging

- (b) Give full forms of the following : 1x10=10

- | | |
|-----------|-------------|
| (i) PCB | (vi) ERH |
| (ii) FAO | (vii) HACCP |
| (iii) PET | (viii) UPC |
| (iv) HTST | (ix) EPA |
| (v) PFA | (x) TBT |

2. (a) Define the following (any five) : 2x5=10
- (i) Hazard
 - (ii) Rigor mortis
 - (iii) Agmark
 - (iv) Enterotoxin
 - (v) Antibiotic
 - (vi) Prions
- (b) Fill in the blanks : 1x10=10
- (i) A low alcohol beverage made from rice is _____.
 - (ii) The temperature at which maximum bacterial growth occurs is called its _____ temperature.
 - (iii) _____ is the process of exposing food to carefully controlled amount of ionising energy to control micro-organisms in food.
 - (iv) Meat has a high _____ activity which is ideal for the growth of microbes.
 - (v) _____ is caused by *Claviceps purpurea*.
 - (vi) Floors of food service establishments should have trapped _____ to carry away the liquid wastes.
 - (vii) The objective of _____ is the development of standardization, marking and quality certification in India.
 - (viii) _____ is a commonly used artificial sweetener in India.
 - (ix) Bacteria which can survive either in the presence or absence of oxygen are called _____.
 - (x) The most important source of *staphylococcus aureus* is _____.

3. Write short notes on **any four** : 5+5+5+5=20
- (a) Biological hazards
 - (b) Bacterial growth curve
 - (c) Pasteurization
 - (d) Spoilage of milk and milk products
 - (e) Principles of HACCP
 - (f) Risk analysis
 - (g) Food additives
4. (a) What are street foods ? Why is the safety of street foods a major concern ? 10
- (b) How can we ensure safety and quality of raw material used in preparation of street foods ? 10
5. (a) What is packaging ? What are various methods of packaging ? 12
- (b) What is food label ? What information is mandatory on food label ? 8
6. (a) Define fermentation. Describe any four fermented products giving the micro-organisms involved in their preparation. 10
- (b) What are GM foods ? What are advantages of GM foods ? Explain with the help of examples. 10
7. (a) What is adulteration ? What are reasons for adulterations ? 10
- (b) Give any five adulterant giving their harmful effects. 10
-