

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

**Term-End Examination
December, 2013**

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. Give the full forms of the following : 1x15=15
- (a) UPC
 - (b) EEC
 - (c) WHO
 - (d) PET
 - (e) BIS
 - (f) HACCP
 - (g) PVDC
 - (h) CCP
 - (i) TBT
 - (j) MRL
 - (k) JECFA
 - (l) GRAS
 - (m) SIDS
 - (n) BOAA
 - (o) VOD

2. (a) Match the items in Column A with the items in Column B. **1x10=10**

Column A	Column B
(i) Baker's feast	(A) Calavi ceps
(ii) Mycotoxin	(B) Hepatitis A
(iii) Prions	(C) Sodium benzoate
(iv) Seafood toxin	(D) Ice cream
(v) Ergotism	(E) Time temperature indicators
(vi) Food Additive	(F) Potato
(vii) Food borne virus	(G) BSE
(viii) Active Packaging	(H) Scombrotoxin
(ix) Salmonellosis	(I) Aflatoxin
(x) Solanine	(J) Saccharomyces

- (b) State the significance of following in relation to Food Safety : **2½x4=10**
- (i) Pesticide Residues
 - (ii) Heavy Metals
 - (iii) Physical hazards
 - (iv) Chemical hazards

3. (a) Define a food additive. Elaborate on its role in the food industry. **5**
- (b) What are the different types of additives used in food industry? Explain giving examples of each category. **15**
4. (a) What is a bacterial growth curve? Discuss all the stages of bacterial growth. **10**
- (b) What are the factors which influence the growth of bacteria? Explain briefly. **10**

5. (a) What is Fermentation ? 3
(b) What are the various types of fermented foods ? 7
(c) What are the various critical points in the manufacture of Vegetable Biryani during HACCP implementation ? 10
6. (a) What is PFA Act ? How does it ensure that the food is safe in our country ? 10
(b) State the significance of each of the following : $2\frac{1}{2} \times 4 = 10$
(i) Fruit Products Order, 1955
(ii) Essential Commodity Act
(iii) Meat Products Order, 1973
(iv) Vegetable oil products Order, 1998
7. Write short notes on *any four* of the following :
(a) Hygiene and Sanitation in Food Industry
(b) Shigellosis 5+5+5+5
(c) Risk Analysis
(d) MAP
(e) Nutritional Labelling
(f) BSE
(g) Chemical hazards in food
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