

POST GRADUATE DIPLOMA IN FOOD SAFETY  
AND QUALITY MANAGEMENT

Term-End Examination

December, 2009

00433

MVP-001 : FOOD FUNDAMENTALS AND  
CHEMISTRY

Time : 3 hours

Maximum Marks : 100

Note : Attempt any five questions. All the questions carry equal marks.

1. Fill in the blanks in the following : 10x2=20
- (a) \_\_\_\_\_ are the active derivatives extracted from plants which exhibit diversified physiological and pharmacological effects while \_\_\_\_\_ food can be defined as food produced and processed in the natural way.
- (b) Malvani cuisine is a \_\_\_\_\_ Indian while Udupi cuisine is a \_\_\_\_\_ Indian cuisine.
- (c) \_\_\_\_\_ oil is rich in MUFA while \_\_\_\_\_ oil is rich in PUFA.
- (d) Peanuts contain \_\_\_\_\_ % of fat while the protein content of soya bean is \_\_\_\_\_ %.

- (e) \_\_\_\_\_ is an important millet crop grown in India while \_\_\_\_\_ is the major oil seed crop of the country.
- (f) The Jewish method of slaughter is called \_\_\_\_\_ while Muslim method is called \_\_\_\_\_.
- (g) Veal is the meat of \_\_\_\_\_ while goat meat is called \_\_\_\_\_.
- (h) \_\_\_\_\_ is an example of an ethnic meat product while \_\_\_\_\_ is a cut of meat taken from the sides, belly or back of a pig that has been cured smoked or both.
- (i) \_\_\_\_\_ refers to the preservation and flavouring processes (by addition of salt, sugar and nitrates) especially of meat or fish while \_\_\_\_\_ is the removal of viscera in the dressing of sheep/goat.
- (j) Spirulina is a highly nutritious form of an \_\_\_\_\_ while \_\_\_\_\_ is a soya paneer.

2. Write *true* or *false* for the following : 20x1=20

- (a) At isoelectric point of protein, they have no charge.
- (b) Hydrolysis of sucrose into glucose and fructose is called nutarotation.
- (c) Syneresis is the separation of liquid from gel caused by contraction of gelling agent.

- (d) Bound water is not involved in the spoilage of food.
- (e) Dextrins are the products of Partial Hydrolysis of Proteins.
- (f) Isoelectric point of casein is 6.5.
- (g) Dielectric constant of water is high due to the polarity in the molecule.
- (h) The presence or absence of lactic acid bacteria decide the bacteriological quality of water.
- (i) Karl Fischer titration is used to determine the acidity of milk.
- (j) Sandiness in condensed milk or ice-cream is due to the crystallization of sucrose.
- (k) Protein content of cow milk is 3.5–4%.
- (l) Caramelization is an example of enzymetic browning.
- (m) Lactose is a monosaccharide.
- (n) Addition of sugar in water lead to a depression in its freezing point.
- (o) Whey proteins of milk are emulsoids.
- (p) Pulses are defficient in methionine amino acid.
- (q) Lysine is a limiting essential amino acid in cereals.
- (r) Iodine value of a fat/oil is the indicator of chain length of its fatty acids.

- (s) Reichert/Meissel value is the number of ml of  $\frac{N}{10}$  aqueous alkali required to neutralize steam volatile water insoluble fatty acids obtained from the distillation of 5g of fat.
- (t) Vitamin controlling the blood clotting is vitamin K.

3. (a) Write full name of the following vitamins :  $5 \times 1 = 5$

- (i) Vitamin C
- (ii) Vitamin B-1
- (iii) Vitamin B-6
- (iv) Vitamin E
- (v) Vitamin B-12

(b) Write full form for the following :  $10 \times 1 = 10$

- (i) GRAS
- (ii) RBC
- (iii) ADI
- (iv) BHA
- (v) TBHQ
- (vi) FTIR
- (vii) ICP
- (viii) LC-MS
- (ix) ECD
- (x) HPTLC

(c) Answer the following :  $5 \times 1 = 5$

- (i) Boiling point of liquid nitrogen.
- (ii) Water activity of honey.
- (iii) Fructose content in honey.
- (iv) UHT heating is given above which temperature ?
- (v) Another name for freeze drying.

4. (a) Write short notes on the following : **5x4=20**
- (i) Cuisine of India
  - (ii) Fat constants
  - (iii) Characteristics indicating the freshness of fish
  - (iv) Rancidity
5. (a) What is biodegradable plastics ? List few sources of biodegradable plastics ? **5**
- (b) Give a brief on the risks associated with sampling. **5**
- (c) What are acidulents ? Why they are added to food products ? **5**
- (d) Write a note on the processing of cocoa beans. **5**
6. (a) Draw, label and explain the structure of a cereal grain. **10**
- (b) Justify that vitamins are vital components of food. **10**
7. (a) Discuss the problems encountered in the determination of moisture in a food. List different methods used to determine moisture in food. **10**
- (b) What is composting ? How this technique can be used for maintenance of ecological balance ? **3+7=10**

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