

**POST GRADUATE DIPLOMA IN
FOOD SCIENCE AND TECHNOLOGY
(PGDFT)**

Term-End Examination

June, 2011

00550

MFT-001 : FOOD CHEMISTRY AND NUTRITION

Time : 3 hours

Maximum Marks : 70

Note : *Attempt all the questions, attempt Two sub sections from questions 1-6 and FOUR short notes from question No.7 All questions carry equal marks.*

1. (a) How do you define "water activity" ? Give 10 reasons for anomalous behaviour of water. Differentiate between free and bound water.
- (b) How do you determine the moisture content of milk products ?
- (c) What changes take place in meat during sterilization ?

2. (a) What are the beneficial and detrimental effects of dietary fibers explain ? 10
- (b) How are the sugars classified explain ? Mention a test used for the determination of monosaccharides with the reactions involved.
- (c) What is an emulsion ? How are emulsifiers classified ? What do you understand by HLB value of emulsifiers ?

3. (a) What are non calorific sweetness ? Explain. **10**
Give examples and chemical structures of at least two of them.
- (b) What do you understand by the term "PDC AAS", explain ? How is it determined ?
- (c) What are antioxidants and how are they classified ? Name few natural and synthetic antioxidants.
4. (a) How do you determine free fatty acids of a fat/oil sample ? Write in details. **10**
- (b) What are trans fatty acids and how are they generated ? What is their effect on the health of human beings ?
- (c) How are the lipids digested and absorbed in GI tract ? Explain in brief.
5. (a) How do you determine the K_m value of an enzyme explain ? What is the significance of K_m and V_{max} ? **10**
- (b) In brief, write the general structure and composition of a typical cereal gram.
- (c) What are various deficiency diseases of proteins ? Explain. What is the RDA of proteins for a school going child, an adolescent and an adult ?

6. (a) Name some of the water soluble pigments. **10**
What do you understand by the term
“very green process” ?
- (b) Write the role of calcium and phosphorus
in human subjects.
- (c) What is the role played by vitamin A in
human subjects ?
7. Write short notes on *any four* : **10**
- (a) Oxidative rancidity
- (b) Nonstarch Polysaccharides
- (c) Essential fatty acids
- (d) Acryl amide in food products
- (e) Protein hydrolysates
- (f) Essential amino acids.
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