

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

**Term-End Examination**

**December, 2007**

**MFN-004 : ADVANCE NUTRITION**

*Time : 3 hours*

*Maximum Marks : 100*

---

**Note :** *Attempt **five** questions in all. Question No. 1 is **compulsory**. All questions carry equal marks.*

---

---

1. (a) Define or explain the following in 2 – 3 sentences : 10
- (i) Water Balance
  - (ii) Double Labelled Water (DLW) Technique
  - (iii) Obligatory losses
  - (iv) Chronic energy deficiency
  - (v) Niacin equivalent

- (b) Give one example for each of the following : 10
- (i) Compartments of body water
  - (ii) Conversion factors/Unit for measuring vitamin A bioavailability
  - (iii) Functions of vitamin K
  - (iv) Food sources of folate
  - (v) ICMR and FAO/WHO recommendation for vitamin B<sub>12</sub> for adult female
  - (vi) Form of calcium present in plasma
  - (vii) Hormones regulating phosphorus metabolism
  - (viii) Functional foods
  - (ix) Techniques for measuring body composition
  - (x) Dietary modifications for the elderly
2. (a) Briefly describe the various factors that are determinant of our nutrient requirements. 12
- (b) Differentiate between recommended dietary allowances (RDA) and dietary reference intakes (DRI) highlighting their components. 8
3. (a) Enumerate the various components of energy expenditure, highlighting the factors that influence energy expenditure and requirement. 12
- (b) What is dietary fibre and resistant starch ? Enumerate their potential health benefits in human nutrition. 8

4. (a) Describe the following methods of evaluation of protein quality highlighting their advantages and limitations : 4+4
- NPU
  - NDPCal%
- (b) Present the recommendation of ICMR for n-6/n-3 ratio and PUFA/SFA ratio. Use of what oils would you recommend for meeting this ratio ? 7
- (c) What makes water the most essential of all the essential nutrients ? Discuss briefly. 5
5. Explain the following briefly : 5+5+5+5
- (a) Role of vitamin D in calcium homeostasis
  - (b) Factors affecting absorption of iron
  - (c) Thiamin has a key metabolic role in the cellular production of energy
  - (d) Criteria for assessment of vitamin A status
6. Discuss the relationship between the following, giving appropriate justifications : 4+4+4+4+4
- (i) Vitamin E and Polyunsaturated fatty acids
  - (ii) Selenium and Lipid peroxidation
  - (iii) Phytate and Nutrient interaction
  - (iv) Polyphenols and Cancer
  - (v) Sodium and Glucose absorption

7. (a) Comment on the physiological changes during pregnancy which impact on the nutritional requirements. 8
- (b) Enlist the national and international recommendation for energy, iron, folate and vitamin A requirement for pregnant and nursing mothers. 4
- (c) Briefly discuss the impact of maternal nutrition on foetal outcome. 8

8. Write short notes on any **four** of the following : 5+5+5+5

- (i) Dietary guidelines for adolescents
- (ii) Nutrient requirements of sportspersons engaged in endurance events such as marathon, swimming etc.
- (iii) Nutritional requirement for space mission
- (iv) Dietary sources and physiological effects of phytoestrogens
- (v) Problems of infants and preschoolers nutrition