

**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 B₁₂ 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