

**POSTGRADUATE INSTITUTE OF MEDICINE**  
**UNIVERSITY OF COLOMBO**

**MSc IN HUMAN NUTRITION EXAMINATION – JANUARY, 2018**

**Date:** 09<sup>th</sup> January 2018

**Time:** 9.30 a.m – 12.30 p.m.

Answer **all six (06) questions**.

Each question to be answered in a separate book.

**01.** Rekha has three children aged 10 years, 4 years and 1 year. When she visited the antenatal clinic at 12 weeks of gestation her BMI was  $17\text{kg/m}^2$ . At a subsequent visit (at 20 weeks) her haemoglobin was found to be 9 g/dl and weight gain was 500g.

1.1 On further investigation you identify that she has iron deficiency.

Discuss the adaptations with regard to iron metabolism that are taking place in her body. (30 marks)

1.2 Comment on her protein balance status. (10 marks)

1.3 Outline the dietary advice you will give. (20 marks)

1.4 Discuss the nutrition interventions available to Rekha in health and non health sectors. (40 marks)

**02.**

2.1

a. Name a starchy root crop which contains a very high amount of beta carotene. (05 marks)

b. Briefly explain how you would process it to have a long shelf life using a **low cost method**, while preserving most of the beta carotene. (10 marks)

c. List the functional properties of it. (10 marks)

2.2 “Food packaging increases the shelf life of fat containing food while preserving the nutrients.” Comment on this statement giving examples. (25 marks)

2.3 Deep frying is a commonly used processing method for most foods.

a. Name the type of browning which takes place with deep frying. (05 marks)

b. Explain how it affects the nutritional value. (20 marks)

2.4 Indicating the nutritional changes, discuss the role of beneficial microorganisms in processing of the following food products.

a. Temphe (10 marks)

b. Yoghurt (15 marks)

**03.**

3.1 List five common breast conditions which cause difficulties with breastfeeding. (20 marks)

3.2 Outline the management of a mother

a. who is known to have flat nipples **during the antenatal period** (10 marks)

b. who is known to have flat nipples **after delivery** (25 marks)

c. who feels she has **insufficient milk** (25 marks)

3.3 Describe ways in which manufacturers promote infant formula milk to health staff. (20 marks)

**04.**

4.1 Describe the concept of first 1000 days of life. (20 marks)

4.2 Discuss the importance of nutrition in the first 1000 days on adult health. (40 marks)

4.3 Outline the steps that would help to improve growth in the first 1000 days of life. (40 marks)

**05.** An 85-year-old woman with pneumonia was admitted to hospital with anorexia. On admission she was cachectic, weak and depressed but a Mini-Mental Score revealed no evidence of dementia. Her temperature was low at 35°C. Her nutrition data are as follows:

**Weight history:**

Height: 148 cm

Current Weight: 30 kg

Usual weight: 40 kg

**Diet history:**

Breakfast: Full cream milk 1 cup

Lunch: Rice 1 tablespoon, dhal 1 teaspoon

Dinner: Full cream milk 1 cup

Snacks: Rice cunjee one cup

**Biochemistry:**

Serum Albumin: 41 (normal 35–55 g/l)

Haemoglobin: 12.8 (normal 12.0-15.5 g/l)

Creatinine: 60 (normal 50-100  $\mu\text{mol/l}$ )

Urea: 3.5 (normal 2.5 – 7.1 mmol/l)

- 5.1 Outline the nutrition assessment of this patient. (30 marks)
- 5.2 List the nutrition problems in this patient. (20 marks)
- 5.3 Describe the nutrition management of this patient. (50 marks)
06. The average daily consumption of fruits among Sri Lankan adult men and women, according to Sri Lanka non-communicable disease risk factor survey 2015 is shown in the table below.

Age group (years)	Men			Women		
	n	Mean No. of servings	95% CI	n	Mean No. of servings	95% CI
18-29	287	1.4	1.0-1.7	499	1.3	1.1-1.4
30-44	657	1.3	1.1-1.4	1128	1.3	1.2-1.4
45-59	665	1.3	1.1-1.4	982	1.3	1.2-1.5
60-69	336	1.4	1.2-1.6	487	1.2	1.1-1.3
<b>18-69</b>	<b>1965</b>	<b>1.3</b>	<b>1.2-1.5</b>	<b>3096</b>	<b>1.3</b>	<b>1.2-1.4</b>

(CI- Confidence Interval)

- 6.1 Describe the results shown in the table. (30 marks)
- 6.2 Mention one statistical test each to compare the fruit consumption pattern
- between men and women (10 marks)
  - across different age groups (10 marks)
- 6.3 You are expected to plan a programme to improve this situation in Sri Lanka. Outline the steps in planning this programme, with a description of activities to be included in the programme. (50 marks)