

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MSC IN HUMAN NUTRITION EXAMINATION – JANUARY, 2020

Date: 7th January 2020

Time: 9.30 a.m.-12.30 p.m.

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

Each question to be answered in a separate book.

1. A 17-year old girl who has been following a self-selected weight loss diet during the last 6 months, has been brought to you by her mother. During the last few months her mother has noticed that her daughter becomes tired easily and is less attentive at school.
 - 1.1. Briefly describe the nutrition requirements for a girl of this age giving reasons for your answer. (20 marks)
 - 1.2. Describe the nutritional assessments you would perform on this girl. (25 marks)
 - 1.3. Outline the steps of management that you would undertake for this girl. (25 marks)
 - 1.4. Discuss the measures to be adopted to prevent such a situation at school level. (30 marks)

2. Mullaitivu district was affected by heavy floods in the last few months, which damaged crops and the infrastructure. The incidence of infectious diseases such as diarrhoea, acute respiratory tract infections and tuberculosis rose. The areas that were worst affected by the floods were also the poorest areas. The most affected populations were daily paid labourers and people engaged in coastal fishing and agriculture.
You as a medical officer of nutrition was asked to assess the immediate nutrition needs of this community.
 - 2.1. List the information you would obtain to assess potential nutrition needs of this community. (20 marks)
 - 2.2. Describe the sources of information and assessment methods you would use to gather this information. (30 marks)
 - 2.3. List five (05) groups who are more nutritionally vulnerable in this situation. (10 marks)
 - 2.4. Describe the nutrition responses that you plan within the first few weeks of this situation. (40 marks)

3.

3.1.

3.1.1. Define obesity. (10 marks)

3.1.2. List five (05) methods based on anthropometry used to diagnose obesity in different sex and age groups. (10 marks)

3.1.3. Discuss the appropriateness of use of three (03) methods you mentioned in 3.1.2 in a clinic setting. (30 marks)

3.2. Mr. Perera a 42-year-old bank manager is awaiting a mini-gastric bypass surgery in three months. His current weight is 133 kg and height is 170 cm. His HbA1c is 6.4%, total cholesterol level is 223 mg/dL, blood pressure is 130/85 mmHg. Ultra sound scan of the abdomen shows hepatomegaly and stage II fatty liver. He is also diagnosed to have obstructive sleep apnoea.

Outline the nutritional and lifestyle management of this patient

3.2.1. pre-operatively (20 marks)

3.2.2. post-operatively (30 marks)

4.

4.1. Outline briefly, with reasons, how you would select the most appropriate sample for each of the following research projects.

4.1.1. A national survey on malnutrition among elderly in Sri Lanka. (25 marks)

4.1.2. Risk factors for childhood obesity among children attending the Medical Nutrition Clinic in a hospital. (25 marks)

4.2. It was observed that the bodyweight of patients with diabetes has not shown a significant reduction even after many clinical interventions at individual level. It is planned to undertake a project to reduce bodyweight among patients attending the nutrition clinic.

4.2.1. Define the term 'project'. (10 marks)

4.2.2. State one (01) goal, one (01) outcome, two (02) outputs and four (04) activities for this project. (16 marks)

4.2.3. List one (01) indicator for each of the above (4.2.2.). (24marks)

5. A study was conducted in England to investigate the relations of maternal diet and smoking during pregnancy to placental and birth weights at term. A sample of 693 pregnant nulliparous white women with singleton pregnancies was selected from antenatal booking clinics. Birth weight and placental weights at term were the primary outcomes.

Results are shown in the table given below.

Daily intake during pregnancy	Mean placental weight (g)	P value
Energy (kcal)		0.21
<1855	511	
1855-2204	518	
≥2205	530	
Protein (g)		0.50
<66	517	
66-79	516	
≥80	525	
Total vitamin C (mg)		0.016
<55	510	
55-97	510	
≥98	538	
Total folate (µg)		0.025
<222	506	
222-299	515	
≥300	537	

- 5.1. Mention the study design giving reasons. (20 marks)
- 5.2. Name a statistical test to be used to calculate significance for the results shown in the above table, stating your assumptions. (30 marks)
- 5.3. Interpret results about the relationship between dietary intakes and placental weight using the table above. (30 marks)
- 5.4. Mention two (02) additional statistical approaches that can be applied to minimize the effect of maternal height and smoking on the above relationship. (20 marks)

6.

- 6.1. “Full cream milk powder retains nutrients and a long shelf life when stored in aluminium foil vacuum packages rather than in normal polythene packages”. Comment on this statement. (30 marks)
- 6.2. List two (02) sources and three (03) health benefits of the following functional food groups. (40 marks)
- (a) Dietary fibre
 - (b) Fatty acids
 - (c) Probiotics
 - (d) Antioxidants
- 6.3. Outline health promotion strategies to reduce salt consumption in an urban low-income community. (30 marks)