POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MSc HUMAN NUTRITION EXAMINATION – JANUARY, 2017

Date : **10th January 2017**　　　　　Time: **9.00 a.m. – 12.00 noon**

1. 15 year old Mala takes part in interschool competitive level swimming. As she is also due to sit the GCE (O/L) examination, she also spends considerable time attending tuition classes. She eats energy dense snacks and drinks to keep herself awake while doing her homework and studies. Her mother is concerned that she is often sleepy and tired, not performing as well as before at school and in swimming. Her daily routine is given below:

4.00 am.	wakes up and has a glass of milk tea
5.00 – 6.00 am.	swimming practices
6.30 am.	light snack
7.15 am.	school
1.45 pm.	chinese rolls in the car on the way to classes
2. 00- 4.00 pm.	tuition class
6.00 pm.	arrives home
7.00 – 9.00 pm.	homework
9.00 pm.	dinner (string hoppers and chicken curry)
9.30 – 11.00 pm.	study
11.30pm.	sleep

Her mother seeks your advice and requests medication for her problems.
On examination you find that her BMI is in the marginally overweight category and that she has pallor.

1.1 Outline the nutritional problems in relation to her dietary habits and
　　lifestyle.　　　　　　　　　　　　　　　　　　　　(30 marks)

1.2 List four additional factors required prior to counseling the mother and
　　daughter.　　　　　　　　　　　　　　　　　　　(20 marks)

1.3 State briefly the advice you would give them regarding her lifestyle and
　　dietary habits.　　　　　　　　　　　　　　　　　(30 marks)

1.4 You have been asked to give nutrition education to the school that this girl
　　attends. Write two short messages that you can use to give out the most
　　important advice.　　　　　　　　　　　　　　　　(10 marks)

1.5 List two relevant public health interventions available for adolescents.
　　　　　　　　　　　　　　　　　　　　　　　　　(10 marks)

2. A 10 year old boy with a weight of 67.5 kg, height of 150 cm and a BMI of 30 kg/m^2 (more than +2SD above median, in BMI for age and sex chart of the Child Health Development Record [CHDR]) was brought to the nutrition clinic by his parents due to excessive weight. Possible medical disorders for this condition have been excluded.

2.1 Outline how you would nutritionally assess this child prior to management. (30 marks)

2.2 List five (05) factors that would be considered in dietary management. (20 marks)

2.3 Describe how you would prepare a meal plan and advice the parents accordingly. (50 marks)

3. 75 year old Mr. Perera is a retired government officer. His BMI is 26 kg/m^2, haemoglobin level is 10 g/dl. He has been a vegetarian for the last 5 years. He has no history of diabetes, hypertension or chronic respiratory disease.

3.1 Comment on his nutritional status. (10 marks)

3.2 Describe the physiological changes that occur in his digestive, nervous, renal, and skeletal systems due to the aging process. (40 marks)

3.3 List five (05) indicators that reflect poor nutritional status in the elderly. (20 marks)

3.4

(a) Name two (02) functional food categories relevant to this age group. (10marks)

(b) Indicate two (02) main sources for each of the above categories. (10 marks)

(c) State two (02) health benefits for each of the above categories. (10 marks)

4. A 26 year old female bank employee, with a 6 week old baby is planning to return to work at the end of 84 working days (approximately 4 months) of maternity leave. She has come to you for advice on feeding her baby when she returns to work. The bank where she works is 3 km from home and her working hours are from 8.30am – 5.00pm. Her mother has agreed to take care of the baby while she is at work.

4.1 What is the national policy on breastfeeding for infants and young children of working mothers? (10 marks)

4.2 Describe the specific advice you would give her on feeding the baby when she returns to work. (30 marks)

4.3 List five 'risks of formula feeding' for each of the following:

(a) infant (10 marks)

(b) mother (10 marks)

4.4 State four activities that could be carried out at the work setting to promote breastfeeding. (20 marks)

4.5 The Medical Officer of Health (MOH) of the area has sought your advice on empowering the community to support breastfeeding among working mothers. List four suggestions that you would include in your advice. (20 marks)

5. A 59 year old male diagnosed with type 2 diabetes mellitus and hypertension was admitted to a medical ward with loss of appetite, fatigue, bilateral ankle oedema and shortness of breath. His height is 166 cm, weight is 55 kg (BMI 20 kg/m^2) and blood pressure is 170/100 mm Hg. His investigation findings were:

Fasting blood sugar	= 156 mg/dl (normal : 70 - 99 mg/dl)
Serum potassium	= 5.6 mmol/l (normal : 3.5 - 5.5 mmol/l)
Serum creatinine	= 4.0 mg/dl (normal : 0.6 - 1.2 mg/dl)
Estimated glomerular filtration rate	
	= 13 ml/min (normal : 90 - 150 ml/min)

5.1 List the five (05) medical problems diagnosed in this patient that require medical nutrition therapy. (10 marks)

5.2 Outline the main components of the Dietary Approaches to Stop Hypertension (DASH) diet. (30 marks)

5.3 List five (05) appropriate methods to assess the nutritional status of this patient. (10 marks)

5.4 Describe the medical nutrition therapy of this patient. (50 marks)

6. A researcher needed to test whether there is a difference in the haemoglobin (Hb) levels in children aged 24-59 months between the districts of Hambantota and Moneragala. He conducted a study for this purpose. Given below are the results.

District	Mean Hb (g/dl)	Standard Deviation	No. of children
Hambantota	12.4	0.40	300
Moneragala	11.0	0.32	240

6.1 Outline the steps in the sampling procedure that would have been used in selecting children for this study. (30 marks)

6.2 Name a suitable statistical test to prove the hypothesis of the researcher, stating two (02) assumptions that you would make when applying this statistical test. (20 marks)

6.3 List five (05) socio-economic variables that would have been included in the data collection giving reasons for each variable. (25 marks)

6.4 Outline briefly how the variables mentioned in question No.6.3 could be used in the data analysis. (25 marks)