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POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MSc IN HUMAN NUTRITION EXAMINATION – JANUARY 2021

Date:- 26th January 2021 **Time:-** 9.30 a.m. – 12.30 p.m.

STRUCTURED ESSAY QUESTION PAPER

Answer **all six (06)** questions.
Each question to be answered in a separate book.

1.

1.1. Indicate the preservation method and briefly outline the principles of preservation involved in each of the following food products. (25 marks)

1.1.1. Bitter gourd chips
1.1.2. Ginger preserve
1.1.3. Frozen wood apple pulp
1.1.4. Canned coconut milk
1.1.5. King coconut wine

1.2. List five (05) benefits of Ultra-High Temperature (UHT) processing technology used in food industry, from the consumer point of view. (10 marks)

1.3. Write a short note on active and intelligent packaging. (15 marks)

1.4. Outline a monitoring system for a therapeutic care programme catering for 100 severely malnourished patients in a COVID-19 treatment centre (50 marks)

2.

2.1. List five (05) reasons as to why nutrition education is important to improve fruit consumption among youth. (10 marks)

2.2. Write the five (05) key action areas of health promotion relevant to improving nutrition, stating one (01) example for each. (20 marks)

2.3. Briefly discuss the role of the Triple A approach in effective nutrition counselling. (30 marks)

2.4. List five (05) possible reasons for failure of a nutrition intervention. (10 marks)

2.5. Briefly describe three (03) key points you would include in a presentation to advocate decision makers regarding high prevalence of obesity in women (30 marks)

Contd..../2-

3. A 36-year-old male office clerk was referred to a Healthy Lifestyle Center. On screening, his body mass index (BMI) was found to be 29 kg/m^2 and his laboratory investigations revealed serum total cholesterol of 300 mg/dL and a random blood sugar of 180 mg/dL.

   3.1. Interpret his BMI. (05 marks)

   3.2. State additional information you would need to collect in the history. (10 marks)

   3.3. List additional laboratory investigations you would recommend, giving reasons. (10 marks)

   3.4. Describe the pathophysiological basis for the development of prediabetes in this person. (25 marks)

   3.5. Briefly outline two (02) national health policies that address the health issues observed in this person. (20 marks)

   3.6. Briefly describe three (03) interventions implemented by the Ministry of Health for the prevention and control of the conditions described in this scenario. (30 marks)

4. A researcher wants to estimate the prevalence of diabetes mellitus among adults in the Colombo Municipal Council area. He used a stratified random sample of 463 subjects comprising 139 men and 324 women aged 18 years and above, from a Grama Niladhari division close to the National Hospital of Sri Lanka. The results found that the prevalence of diabetes mellitus was 27.6% (95% CI: 23.7-31.4)

   4.1. Describe what is meant by a stratified random sample. (20 marks)

   4.2. List the required information for the calculation of sample size to estimate a prevalence. (20 marks)

   4.3. Interpret the finding of the above-mentioned study. (20 marks)

   4.4. State two (02) biases observed in the above-mentioned study. (10 marks)

   4.5. Describe three (03) possible changes in the methodology which could be adopted to improve the validity of this study. (30 marks)

Contd...../3-

5. A 56-year-old farmer is diagnosed with chronic kidney disease (CKD). His glomerular filtration rate (GFR) is 25 mL/minute and his serum potassium is 6.5 mEq/L (reference range, 3.5-5.5). His current body weight is 55 kg and his height is 169 cm. His usual body weight was 65 kg.

   5.1. State four (04) nutritional problems anticipated in this patient. (10 marks)

   5.2. Compare and contrast the suitability of using a 24-hour-dietary-recall vs. food frequency questionnaire to assess the current food intake of this patient. (30 marks)

   5.3. Describe the usefulness of weighing scale, stadiometer, measuring tape and skin fold caliper to estimate muscle loss in this patient. (40 marks)

   5.4. Outline the dietary advice you would provide for this patient to control his potassium intake. (20 marks)

6. Supun, a 6-year-old schoolboy was found to have pallor during the school health inspection and later diagnosed to have iron deficiency anaemia.

   6.1. Define iron deficiency anaemia in a 6-year-old boy. (10 marks)

   6.2. Outline the mechanisms of pathogenesis of iron deficiency anaemia. (25 marks)

   6.3. Describe the relationship between iron deficiency and cognitive development. (25 marks)

   6.4. Plan a programme to control and prevent iron deficiency anaemia among children in this primary school. (40 marks)