



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

P.O. Box 972-60200 – Meru-Kenya

Tel: +254(0) 799 529 958, +254(0) 799 529 959, + 254 (0) 712 524 293,

Website: info@must.ac.ke Email: info@must.ac.ke

University Examinations 2023/2024

SECOND YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF CLINICAL MEDICINE AND COMMUNITY HEALTH

CCM 3224: HUMAN NUTRITION AND DIETETICS

DATE: APRIL 2024

TIME: 2 HOURS

INSTRUCTIONS:

Answer *All* questions

Ensure that all your answers are properly numbered

Part A: Short Answer Questions – Answer questions following each other on the answer booklet

Part B: Long Answer Questions – Answer questions following each other on the answer booklet

Part C: multiple Choice Questions (MCQ): Write the correct answer on the space provided in the answer booklet. Each MCQ is one mark

SECTION A (40 MARKS) ANSWER ALL QUESTIONS

1. Explain the differences between blanket supplementary feeding and targeted supplementary feeding (4 marks).
 2. World Health Organization recommends exclusive breastfeeding for the first 6 months after birth. State four scientific evidences that support this recommendation (4 marks)
 3. State risks associated with increased consumption of dietary sugars on occurrence of non-alcoholic fatty liver disease and non-alcoholic steatohepatitis (6 marks)
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4. Explain the relationship between modifiable and metabolic risk factors of non-communicable disease (4 marks)
5. Cachexia is a common occurrence in poorly managed immune-compromising conditions. Explain metabolic systemic effects attributed to cachexia (4 marks)
6. A patient coming for return diabetic appointment presents with glycosylated hemoglobin (A1 C) test of 9.5, blurred vision and alcoholic smell. What is the indication of these results in regard to metabolic status of this patient? (6 marks)
7. Discuss three components of pre-conception care that support optimal maternal health and nutrition (6 marks)
8. The UNICEF conceptual framework for malnutrition is a recommend model to use when analyzing factors contribution to nutrition deficiencies and frequent infections. Discuss (6 marks)

SECTION B (40 MARKS)

1. Iron deficiency is one of the most common causes of poor health and development status in the developing world today. Outline 3 causes of the deficiency citing three intervention measures you would initiate to curb the problems (6 marks)
2. Discuss the role of hormones for optimal breastfeeding (8 marks)
3. State four nutrition indices used for nutrition assessment in children under five years (8 marks)
4. Describe at least four physiological properties of dietary and their indication to health (12 marks)
5. State three factors that can influence laboratory tests based on blood and urine samples (3 marks)
6. Outline three advantages and three limitations of clinical assessment (3 marks)

SECTION C (20 MARK)

1. A deficiency of niacin in the diet causes:
 - a. Osteopenia
 - b. Beri-beri
 - c. Pellagra
 - d. Scurvy

2. What happens when cortisol is released?
 - a. The glucose levels in the blood drops
 - b. The glucose levels rise
 - c. Glucagon is released into the cells
 - d. Glucose is released by the liver

3. What are the products of triglyceride catabolism?
 - a. 2 fatty acids and glucose
 - b. 3 fatty acids and glycerol
 - c. 3 fatty acids and cholesterol
 - d. 3 fatty acids and glycogen

4. Which of the following is an example of a catabolic reaction?
 - a. Adipocytes and hepatocytes are metabolized into glucose
 - b. Glucose is synthesized into glycogen
 - c. Tryptophan and histidine are converted into a peptide
 - d. Two glucose molecules are converted into maltose

5. Which of the following cannot be broken down into intermediates products that enter mitochondria for further metabolism?
 - a. Proteins
 - b. Alcohol
 - c. Vitamins

- d. Carbohydrates
6. A clinical study is performed involving dietary iron metabolism in adults. It is observed that intestinal absorption of iron can be enhanced in patients with iron deficiency anemia by supplementing their diet with another nutrient. Which of the following vitamins is most likely to have this effect?
- a. Vitamin B 1
 - b. Vitamin A
 - c. Vitamin E
 - d. Vitamin C
7. A 4-year-old child was born at term, with no congenital anomalies. She is now only 70% of normal body weight. On examination she shows dependent edema of the lower extremities as well as an enlarged abdomen with palpable fluid wave. Which of the following nutritional problems is most likely present this child?
- a. Marasmus
 - b. Scurvy
 - c. Niacin deficiency
 - d. Kwashiorkor
8. How can diuretics disrupt a person's fluid and electrolyte balance?
- a. They increase the amount of electrolytes in the body, and the kidneys are unable to filter them out and excrete them.
 - b. They send a message to the brain to tell the kidneys to stop excreting urine.
 - c. They make a person urinate more frequently, so the kidneys excrete higher than normal amounts of sodium.
 - d. They send a message to the brain to stimulate a person's thirst.
9. The following is true about dietary supplements except:
- a. At very high levels of intake, some nutrients exert toxic effects by interfering with the actions of drugs or other nutrients

- b. A person who is obsessive of avoiding fat is at high risk of vitamin E deficiency
 - c. High levels of phosphate can antagonize calcium uptake
 - d. Dietary supplements are tightly regulated in terms of content and safety
10. Alcohol is characterized by:
- a. Ability to supply 4 calories per gram
 - b. Ability to supply a ketones during starvation
 - c. Ability to supply 9 calories per gram
 - d. Ability to supply 7 calories per gram
11. Impaired fasting glucose is characterized by all the following indicators except:
- a. Increased glucose production by the liver
 - b. Impaired insulin secretion
 - c. Decreased glucose uptake from the skeletal muscle
 - d. Impaired secretion glucagon secretion
12. Which one of following statements about nitrogen balance is correct?
- a. In nitrogen equilibrium the excretion of nitrogenous metabolites is greater than the dietary intake of nitrogenous compounds
 - b. Positive nitrogen balance means that there is a net loss of protein from the body
 - c. In positive nitrogen balance the excretion of nitrogenous metabolites is less than the dietary intake of nitrogenous compounds
 - d) In negative nitrogen balance the excretion of nitrogenous metabolites is less than the dietary intake of nitrogenous compounds
13.is the most preferred method of assessing dietary intake
- a) Food frequency questionnaire
 - b) 3-day food diary
 - c) 24-hour recall
 - d) Direct intake observation
14. The following are true of anorexia nervosa except

- a) Increased body temperature
 - b) Decreased heart rate
 - c) Denial of appetite
 - d) Cachexia
15. Which of the following is an essential nutrient?
- a) Cholesterol
 - b) Vitamin D
 - c) Potassium
 - d) Vitamin K
16. Acquiring sufficient vitamin B 12 from the diet may be a problem to vegans because...
- a) Phytic acid in vegetable proteins may inhibit its absorption.
 - b) It is only found in animal products.
 - c) It is not stored to any great extent
 - d) Deficiency may result from high intakes of legumes
17. Energy intake and energy expenditure is generally achieved on a:
- a) Day-to-day basis
 - b) Weekly basis
 - c) Monthly basis
 - d) 1-2 week basis
18. The following statements describe glucose metabolism except:
- a) All of the reactions of glycolysis are freely reversible
 - b) Fructose cannot be used for gluconeogenesis in the liver
 - c) Glycolysis can proceed to krebs cycle if only pyruvate is metabolised into acetyl co-A
 - d) Red blood cells can only metabolize glucose by anaerobic glycolysis
19. All the following breast milk ejection reflexes except:
- a) Contraction of myoepithelial cells by oxytocin

- b) Contraction of myoepithelial cells by prolactin
 - c) Sensory impulse from nipple to brain
 - d) Thoughts of baby by the mother
20. It is associated with ascites secondary to hypertension
- a) Stroke
 - b) Congestive heart failure
 - c) Angina pectoris
 - d) Heart Attack