



KENYATTA UNIVERSITY
EXAMINATION FOR THE DEGREE OF BACHELOR OF BACHELOR OF
SCIENCE (MEDICAL LABORATORY SCIENCE)

HML 403: BASICS OF NUTRITION, DIETETICS AND NUTRITIONAL DISORDERS

**1ST
3RD** TRIMESTER 2021/2022

TIME: 2 HOURS

INSTRUCTIONS:

SECTION A: ANSWER ALL QUESTIONS (4 MARKS EACH)

1. Describe the importance of Omega 3 fatty acids in a human body (4 marks)
2. Differentiate between saturated and unsaturated fatty acids giving two examples for each (4 marks)
3. Using examples, describe two major classes of nutrients (4 marks)
4. List four factors that influence basal metabolic rate (4 marks)
5. Explain the cause and characteristics of pellagra disease (4 marks)

SECTION B: ANSWER ANY ONE QUESTION (20 MARKS EACH)

6. a) State functions of calcium in the body (5 marks)
b) Describe factors that influence utilization of vitamins in the body (5 marks)
c) Discuss techniques used to determine if an individual is obese (overweight) (10 marks)
7. a) State the functions of vitamin E in the body (5 marks)
b) State the importance of determining nutritional status of an individual or community (5 marks)
c) Discuss methods of food processing (10 marks)

SECTION C: ANSWER ALL QUESTIONS (EACH QUESTION IS ½ MARK)

1. What is the role of cholesterol in the cell membrane?
 - a) It functions in joining adjacent cells together
 - b) It recognizes foreign cells
 - c) It increases the rate of transport of ions across the membrane
 - d) It stabilizes the cell membrane

2. Deficiency of vitamin A in children causes:
 - a) Goitre
 - b) Poor cognitive development
 - c) Poor bone growth
 - d) Increased risk of mortality

3. Deficiencies of which of the following nutrients can lead to anaemia?
 - a) Iodine and vitamin C
 - b) Iron
 - c) Zinc
 - d) Vitamin D and zinc

4. Which of the following has not at one point in the past few decades been considered as a cause of the oedema of kwashiorkor?
 - a) Altered composition of intestinal bacteria
 - b) Low intake of antioxidant nutrients
 - c) Sudden weaning from the breast
 - d) Iron deficiency

5. Which of the following is the term for substances that are both required by the body and that must be obtained from diet?
 - a) Food
 - b) Nutrients
 - c) Essential foods
 - d) Essential dietary needs

Reliable sources of nutrition information

- a) provide guidance about the most recent dietary trends
- b) provide guidance based on multiple studies and achieve scientific consensus
- c) have embedded beliefs regarding proper nutrition and a profit motive
- d) have only medical experts to support their claims

7. Lipids (fats) are absorbed directly from the small intestines into

- a) the blood
- b) fat cells
- c) lymphatic cells
- d) lymphatic vessels

8. Which hormone stimulates glycogen breakdown in the liver?

- a) Insulin
- b) Glucagon
- c) Leptin
- d) Thyroid hormone

9. Glycogen is mainly stored in

- a) muscle and liver tissue
- b) pancreas and kidney tissue
- c) stomach and intestine tissue
- d) brain and red blood cell tissue

10. What is the most common type of fat in food and in body fat stores?

- a) Glycerol
- b) Triglycerides
- c) Monoglycerides
- d) Diglycerides

11. A molecule that can block free radicals by donating one of its own electrons is
- a) a superoxide molecule
 - b) a reactive oxygen species
 - c) an antioxidant
 - d) an electron destabilizer
12. Athletes' intake of electrolytes, such as sodium, should
- a) be increased with salt pills
 - b) be increased with foods
 - c) remain fairly constant
 - d) be decreased with pills
13. Adequate consumption of _____ before and during the early stages of pregnancy significantly reduces the incidence of neural tube defects.
- a) folic acid
 - b) thiamin
 - c) Vitamin A
 - d) Vitamin C
14. Individual's blood cholesterol and the rate of death from heart disease is low in populations whose dietary fat consists mostly of _____ fats, and a diet that includes fish, fruits, and vegetables.
- a) unsaturated
 - b) saturated
 - c) trans
 - d) omega-7
15. Water from the undigested food is mainly absorbed in the
- a) Stomach
 - b) Food pipe
 - c) Small intestine
 - d) Large intestine

16. Deficiency of proteins and carbohydrates in infants leads to
- a) Marasmus
 - b) Goitre
 - c) Obesity
 - d) None of these
17. The essential fatty acids that must be derived from the diet are:
- a) Stearidonic acid and eicosatetraenoic acid
 - b) Eicosapentaenoic acid and docosapentaenoic acid
 - c) Gamma-linoleic acid and arachidonic acid
 - d) None of the above
18. A deficiency of thiamine (vitamin B1) in the diet causes:
- a) Osteopenia
 - b) Pellagra
 - c) Scurvy
 - d) None of the above
19. One of the fat-soluble vitamins involved in coagulation is:
- a) Vitamin K
 - b) Vitamin A
 - c) Vitamin D
 - d) Vitamin E
20. All of the following statements about vitamin B3 (niacin) are true except:
- a) It helps to release energy in carbohydrates, fat, and protein
 - b) It improves blood lipid levels
 - c) Deficiency causes beriberi
 - d) It is involved in the synthesis of sex hormones