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UNIVERSITY EXAMINATIONS 2023/2024

SECOND YEAR, FIRST SEMESTER EXAMINATION FOR BACHELOR OF SCIENCE IN
NURSING

NND 3217: NUTRITION AND HEALTH

DATE: DECEMBER 2023

TIME: 3 HOURS

INSTRUCTIONS: Answer all questions in the booklet provided

Ensure that all your answers are properly numbered

Section One: Multiple Choice Questions (MCQs): Write the correct answer on the space provided in the answer booklet. Each MCQ is one mark.

Section Two: Short Answer Questions – Answer questions following each other on the answer booklet

Section Three: Long Answer Questions – Answer the questions on the answer booklet

All questions are compulsory

SECTION A: MULTIPLE CHOICE QUESTIONS (20 MARKS)

1. The rate and extent to which a vitamin is absorbed and used in the body is known as:
 - A. Bioavailability
 - B. Intrinsic factor
 - C. Physiological effect
 - D. Pharmacological effect
 2. The most likely cause of high serum sodium level is:
 - A. Overhydration
 - B. Diuretic use
 - C. Inadequate sodium intake
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- D. Dehydration
3. A deficiency of vitamin B1 (Thiamin) in the diet causes:
- A. Osteopenia
 - B. Ben-beri
 - C. Pellagra
 - D. Scurvy
4. The serum markers of hyperlipidemia expected to decrease the most in a client with hyperlipidemia who has been on a high soluble fiber diet for the past three months is:
- A. Triglycerides
 - B. LDL cholesterol
 - C. HDL cholesterol
 - D. Total cholesterol
5. A positive nitrogen balance is expected when:
- A. When the body is building itself back after an illness
 - B. During starvation
 - C. During a disease state
 - D. In a fed state
6. Gluconeogenesis is decreased by:
- A. Glucagon
 - B. Epinephrine
 - C. Cortisol
 - D. Insulin
7. Which one of the 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

8. All the following breast milk ejection reflexes except:
- A. Contraction of myoepithelial cells oxytocin
 - B. Contraction of myoepithelial cells by prolactin
 - C. Sensory impulse from nipple to brain
 - D. Thoughts of baby by the mother
9. The statement that correctly describes the approximate amount of energy yielded from 1 gram of each of the macronutrients is:
- A. CHO 6Kcal, fat 9Kcal, protein 4Kcal, alcohol 7Kcal
 - B. CHO 16Kcal, fat 37Kcal, protein 17Kcal, alcohol 29 Kcal
 - C. CHO 4Kcal, fat 9Kcal, protein 4Kcal, alcohol 7Kcal
 - D. CHO 4Kcal, fat 7Kcal, protein 4KJ, alcohol 9Kcal
10. The statement that best describes the relative proportions of the different components of energy expenditure for a healthy individual of standard activity level is
- A. 25% basal metabolic rate, 10% diet induced thermogenesis, 15 — 30% physical activity
 - B. 50 % basal metabolic rate, 30% diet induce thermogenesis, 20% physical activity
 - C. 60 — 75% basal metabolic rate, 10% diet induced thermogenesis, 15 — 30% physical activity
 - D. 45% basal metabolic rate, 10 % diet induced thermogenesis, 45% physical activity
11. Assessment of serum calcium levels is important for:
- A. Severe malnutrition
 - B. Chronic kidney disease
 - C. Liver inflammation
 - D. Osteoporosis
12. Elevated serum creatinine level is indicative of:
- A. Impaired liver function
 - B. Impaired pancreas function
 - C. Impaired kidney function
 - D. Impaired heart function

13. You are attending to a client who follows a vegan diet. You should identify that the client is at risk for which of the following deficiencies?
- A. Vitamin D
 - B. Vitamin C
 - C. Vitamin B 12
 - D. Folic acid
14. A 46-year-old female weighing 82 kg and is 158 cm tall is classified as:
- A. Very obese
 - B. Very overweight
 - C. Moderate overweight
 - D. Obese
15. Lipids (fats) are absorbed directly from the small intestines into
- A. The blood
 - B. Fat cells
 - C. Lymphatic cells
 - D. Lymphatic vessels
16. Glycogenolysis is ----- and is stimulated by _____
- A. Anabolic, insulin
 - B. Catabolic, adrenaline
 - C. Catabolic, insulin
 - D. Anabolic, adrenaline
17. A glycated hemoglobin (A1 C) test measuring 6.5% or greater suggests which endocrine disease or disorder?
- A. Diabetes
 - B. Hypothyroidism
 - C. Hyperlipidemia
 - D. Hyper metabolism
18. The following are true of anorexia nervosa except
- A. Increased body temperature
 - B. Decreased heart rate
 - C. Denial of appetite
 - D. Cachexia

19. It is associated with ascites and oedema secondary to hypertension
- A. Stroke
 - B. Congestive heart failure
 - C. Angina pectoris
 - D. Heart Attack
20. The pathogenesis of hyperglycemia in type 2 diabetes includes all the following mechanisms except for:
- A. Increased glucose production by the liver
 - B. Impaired insulin secretion
 - C. Decreased glucose uptake from the skeletal muscle
 - D. Impaired glucagon secretion

SECTION B: LONG ANSWER QUESTIONS (30 MARKS)

1. A breastfeeding mother states that 'despite breast feeding the infant does not thrive'. Explain the role of hormones in milk production (2 marks)
2. Explain fate of pyruvate under anaerobic conditions (2 marks)
3. "Anemia deficiency is multifactorial" Substantiate this statement (4 marks)
4. Explain the association between lipoprotein and cardiovascular diseases (3 marks)
5. Explain the effect of stress on carbohydrate, protein and lipids (3 marks)
6. Explain the role of dietary fiber in the prevention and management of chronic diseases (4 marks)
7. Discuss the role of sodium, chloride and potassium in maintenance of acid base balance and fluid volumes (6 marks)
8. Faz has been managing type 2 diabetes for the last six years with insulin and oral medication. Of late she has been complaining of fatigue and blurriness. Upon assessment the nurse notices that her breathe smells like alcohol. Describe her metabolic response the resulting influence on her nutrition and health condition (6 marks)

SECTION C: SHORT ANSWER QUESTIONS (20 MARKS)

A 4-year-old child is admitted to the pediatric unit with watery diarrhea, low hemoglobin level, hypoglycemia and oedema. The mother reports that the child has not completed all the recommended immunizations and has not received vitamin A supplementation in the last 3 years.

- i. Describe four nutrition assessment indicators that a clinician can utilize to assess the child's nutrition status (4 marks)
- ii. According to the UNICEF conceptual framework for malnutrition, explain three possible underlying causes contributing to child's nutritional status (6 mark)
- iii. With examples, describe the five sub-clinical stages of marginal micronutrient deficiency (10 marks)