



TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR:

BACHELOR OF MEDICAL LABORATORY SCIENCES

**AFS 4201: PRINCIPLES OF HUMAN NUTRITION**

SPECIAL/ SUPPLEMENTARY EXAMINATIONS

SERIES: SEPTEMBER 2018

TIME: 2HOURS

DATE: SEPTEMBER 2018

Instructions to Candidates

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of Choose NoSection(s). AttemptALL questions.

Circle the correct answer in section A.

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PAPER TWO **SECTION A:**

**Attempt all questions in this section**

1. Which of the following is a macronutrient?

- a. Vitamin A
- b. Selenium
- c. Protein
- d. Antioxidants
- e. None of the above

2 . Which of the following is the leading cause of type II diabetes in the USA?

- a. Overnutrition

- b. Vitamin A deficiency
  - c. Vitamin C deficiency
  - d. Iron deficiency
  - e. All the above
3. Which of the following is a dietary guideline that is agreeable.
- a. Cut out all fats.
  - b. Eat more protein.
  - c. Eat a wide variety of foods, especially vegetables.
  - d. Eat plenty of antioxidants
  - e. Eat more carbohydrate
4. Which of the following is NOT an example of a carbohydrate?
- a. Starch
  - b. Sucrose
  - c. Glycogen
  - d. Cholesterol
  - e. pentose
5. What defines all carbohydrates?
- a. They all have the formula  $(CH_2O)_n$
  - b. They all contain carbon, hydrogen and only one oxygen.
  - c. They all contain oxygen and nitrogen
  - d. They are all made of long chains of sugars
  - e. All the above are true
6. Which of the following is NOT a monosaccharide?
- a. Glucose

- b. Galactose
  - c. Fructose
  - d. Maltose
  - e. Both b and d
7. Sucrose is actually composed of...
- a. Glucose + Fructose
  - b. 2 Fructose molecules
  - c. 2 glucose molecules
  - d. Fructose and a lot of other industrial chemicals
  - e. Fructose and galactose
8. Which of the following is a carbohydrate, AND is found in large quantities in a potato?
- a. Starch
  - b. pure glucose
  - c. pure fructose
  - d. stearic acid
  - e. pure galactose
9. Which of the following is NOT a function of polysaccharides in human nutrition?
- a. Energy
  - b. Fiber
  - c. Prevents ketoacidosis
  - d. building enzymes
  - e. both b and c
10. Which form of carbohydrate does the human body use to store energy?
- a. Starch

- b. cellulose
  - c. glycogen
  - d. chitin
  - e. glycoproteins
11. What happens when insulin is released by the pancreas?
- a. The glucose levels in the blood go down.
  - b. The glucose levels in the blood go up.
  - c. Glucagon is released by all the cells of the body.
  - d. Glucose is released by all the cells of the body
  - e. Ketones are released by the cells.
12. Type I Diabetes Mellitus is a condition in which...
- a. the pancreas makes too much glucagon
  - b. the stomach cannot digest sugar.
  - c. the pancreas makes too much insulin.
  - d. the pancreas makes little or no insulin
  - e. non of the above
13. Which of the following is a sugar alcohol?
- a. Glucose
  - b. stearic acid
  - c. xylitol
  - d. sucrose
  - e. lactose
14. Most dietary fiber is made of...
- a. cellulose

- b. starch
  - c. chitin
  - d. glycogen
  - e. disacchrides
15. Which of the following is NOT a known advantage of including fiber in the diet?
- a. Reduced risk of brain cancer.
  - b. Prevents constipation and diarrhea
  - c. Reduces hunger by making you feel full longer.
  - d. Reduces risk of colon cancer
  - e. Both a and d
16. Which of the following is NOT a lipid?
- a. Fatty acids
  - b. Triglycerides
  - c. Cholesterol
  - d. Polypeptides
  - e. All the above are false
17. What do we get when we break down a triglyceride?
- a. 3 fatty acids and glycerol
  - b. 3 fatty acids and glucose
  - c. 2 fatty acids and cholesterol
  - d. 2 fatty acids and glycerol
  - e. None of the above
18. Which of the following is the most important function of phospholipids?
- a. Energy

- b. Building cell membranes
  - c. Building DNA
  - d. making hormones
  - e. making proteins
19. Which of the following is a FALSE statement about cholesterol?
- a. The body produces cholesterol.
  - b. Cholesterol is the most harmful kind of lipid in our diet.
  - c. We use cholesterol to make some hormones
  - d. Cholesterol has a 4-ring structure.
  - e. All the above are false
20. Which of the following is the best source of omega-3 fatty acids?
- a. Steak
  - b. fish
  - c. pork
  - d. corn oil
  - e. orange juice
21. Which of the following is the definition of an essential amino acid?
- a. An amino acid that rids the body of toxins.
  - b. An amino acid that is very healthy to eat.
  - c. An amino acid that the body needs but cannot make for itself.
  - d. Any amino acid that the body uses to make proteins
  - e. Any amino acid that the body makes in large amount
22. Which of the following is an essential amino acid?
- a. Fatty acids

- b. Valine
  - c. Alanine
  - d. Glycine
  - e. Both c and d
23. Which of the following contains a complete protein?
- a. Kidney beans
  - b. wheat
  - c. steak
  - d. potatoes
  - e. mangoes
24. What is a complete protein?
- a. It is a food that contains significant amounts of all the essential amino acids
  - b. It is a food that contains significant amounts of every single amino acid.
  - c. It is a food that is made completely of protein.
  - d. It is a single protein that contains every single amino acid.
  - e. All the above are correct
25. Which of the following does NOT contribute to a specific protein's individual properties and functions in the body?
- a. Shape
  - b. color
  - c. sequence of amino acids
  - d. arrangement of charges, and regions of polarity or non-polarity.
  - e. Both a and b
26. Which of the following is NOT a function of protein?

- a. Provides several important players in the immune system
- b. Acid-base balance
- c. Muscular contraction
- d. Protein is the body's first choice for an energy source.
- e. Heart muscle contraction

27. Which of the following is used primarily to store amino acids in the body?

- a. Glycogen
- b. Triglycerides
- c. Enzymes
- d. Nothing. The human body does not have a good storage mechanism for amino acids
- e. Both a and b

28. Which of the following is referred to as the “primary structure” of a protein?

- a. The sequence of amino acids
- b. The pattern of re-occurring motifs such as coils and sheets
- c. The over-all shape of a single protein
- d. The way that separate proteins fit together
- e. None of the above

29. What is the relationship between DNA and protein?

- a. DNA is used as a template to make proteins
- b. Proteins are used as a template to make DNA.
- c. DNA is made out of amino acids
- d. proteins are made out of nucleic acids
- e. none of the above

30. Which of the following is an important reason to consume insoluble fiber?



- a. It provides digestible energy.
- b. It provides a source of energy for intestinal bacteria in humans.
- c. It facilitates the removal of solid waste by providing bulk.
- d. It inhibits the passage of stool.
- e. It supplies many water-soluble vitamins.

## SECTION B

Attempt all the questions in this section

31a. Briefly explain health problems caused by undernutrition and give example (10 marks)

31b. If you were to carry out a survey on Vitamin A deficiency in your country. Clearly describe the different disorders you would expect. (10marks)

32 a. List the various clinical signs of nutritional deficiency (10marks)

32b. Describe and give example of hereditary nutritional disorders (10 marks)