



Name: _____

S.5 MID-TERM EXAMINATIONS 2023

Uganda Advanced Certificate of Education

BIOLOGY (P530/1)

PAPER 1(THEORY)

2 hours 15 minutes

INSTRUCTIONS

- **This paper consists of section A and B**
- **Answer all questions in both sections.**
- **Write answers to section A in the answer grid provided and answers to section B in the spaces provided.**
- **No additional sheets of paper should be inserted in this booklet.**

Grid box for section A

1		11	
2		12	
3		13	
4		14	
5		15	
6		16	
7		17	
8		18	
9		19	
10		20	

SECTION A (20 MARKS)

1. In a heavily polluted aquatic ecosystem, the group of organisms with the highest concentration of pollutants in their bodies are the
 - A. Tertiary consumers
 - B. Secondary consumers
 - C. Primary consumers
 - D. Primary producers
2. Which one of the following is responsible for destroying worn out organelles in a cell
 - A. Lysosome
 - B. Ribosome
 - C. Endoplasmic reticulum
 - D. Mitochondria
3. The rate of enzyme controlled reaction becomes constant at a certain point with increase in substrate concentration because
 - A. Enzymes are denatured
 - B. Active sites become fully occupied
 - C. End product inhibition occurs
 - D. Cofactors become used up
4. Which one of the following explains why sucrose is a good transport substance in plants?
It
 - A. Can easily be hydrolyzed
 - B. Easily enters the general metabolic pathways
 - C. Has high solubility thus forming high concentrations
 - D. Is highly abundant in plants
5. What are the triplet bases on the template DNA strand if the anticodon of tRNA is ACG?
 - A. ACG
 - B. UGC
 - C. TGT

D. GGC

6. In estimating the population of a weed in an area of 1000 meters squared, a 1 meter squared quadrat was thrown 50 times and the total number of weeds counted were 60. What was the estimated population of the weed?

A. 20

B. 300

C. 833

D. 1200

7. Starch and glycogen are suitable storage molecules because they

A. Are large in size which makes them less soluble in water

B. Are chemically reactive in the cell

C. Can easily be hydrolyzed

D. Exert an osmotic pressure in the cell

8. Which of the following organelles would be most abundant at a site where some embryonic tissues are being discarded?

A. Mitochondria

B. Ribosomes

C. Golgi apparatus

D. Lysosomes

9. During protein synthesis, the anticodon base sequence on tRNA is AUG. What is the base sequence on the template DNA strand?

A. UAC

B. ATG

C. AUG

D. TAC

10. Which of the following groups comprises of organisms with the least common features?

A. Species

B. Genus

- C. Family
 - D. Order
11. Saturated fatty acids and unsaturated fatty acids are similar in
- A. The number of carbon to carbon bonds they possess
 - B. Their consistency at room temperature
 - C. The number of oxygen atoms present
 - D. The number of hydrogen atoms they contain
12. What would be the estimated fish population in a lake if 350 fish were captured, marked and released and later 450 fish including 150 marked fish were captured?
- A. 116
 - B. 650
 - C. 1050
 - D. 250
13. Which one of the following would not apply to a population whose population size is growing exponentially?
- A. Absence of predator
 - B. Reproduction rate being higher than death rate
 - C. Shortage of reproducing individuals
 - D. Absence of competition for resources
14. Which one of the following is a characteristic of members of the monera kingdom?
- A. Possession of a true nucleus
 - B. Being single celled
 - C. Possession of flagella
 - D. Being heterotrophic
15. Mosses growing on the bark of a tree form an association with the tree called
- A. Mutualism
 - B. Parasitism

C. Commensalism

D. Predation

16. Which one of the following is synthesized at interphase during mitosis?

A. rRNA

B. mRNA

C. DNA

D. tRNA

17. The function of the nucleoli in a cell is to form

A. The nuclear membrane

B. Ribosomes

C. The spindle during nuclear division

D. Centrioles

18. The type of succession where recolonization of an area results into a different community from the original one is known as

A. Primary

B. Deflected

C. Dominant

D. Secondary

19. The conversion of mRNA to a polypeptide is known as

A. Transcription

B. Translation

C. Transduction

D. Transformation

20. In which one of the following parts of a chloroplast are water splitting enzymes mostly located?

A. Stroma

B. Intergrana

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(c) Explain the role of the active sites of an enzyme in enzyme specificity. (2 marks)

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22a) Explain the role of consumers and producers in the recycling of carbon in nature.

i) Consumers (3marks)

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ii) Producers (2marks)

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b) Give five reasons why all the carbon in plants is not accessible to herbivores. (5marks)

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23a) What is meant by primary productivity? (1mark)

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b) Explain how each of the following affects primary productivity in plants

i) Water stress (5marks)

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iii) Chlorosis (4marks)

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24a) Describe the structure of the rough endoplasmic reticulum. (5marks)

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b) How is the rough endoplasmic reticulum adapted to perform its function in a palisade mesophyll cell? (5marks)

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25a) Compare and contrast between;

i) lysosome and peroxisome (2 marks)

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ii) Lysosome and large central vacuole (3 marks)

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b) In what way would an amoeboid cell take up a sugar crystal for assimilation in its cytoplasm? (5marks)

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26a) What are the components of a nucleotide? (3marks)

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