

MID TERM 1 2018 EXAM

S. 3 BIOLOGY

PAPER ONE

DURATION: 2 HOURS: 30 MINUTES

Instructions

1. Attempt all questions in section A, B and C
2. Circle the most correct alternative in section A. Answers for section B **MUST** be answered in the spaces provided.
3. Answers for Section C must be written in the provided answer sheets.
4. Poor handwriting leads to loss of marks. So write well.

SECTION A

1. Arachnids can easily be identified by;
A. 3 pairs of legs
B. 2 body parts
C. 2 main body parts
D. A pair of antennae
2. What is the possible reason for the fall in the volume of oxygen gas released during photosynthesis after 40°C?
A. There was no oxygen in the atmosphere
B. There was no more carbondioxide
C. There was too much light intensity
D. Enzymes were denatured
3. Leguminous plants are characterized by;
A. Production of seeds in a capsule pod
B. Production of seeds in a follicle pod
C. Presence of nodes in shoots
D. Presence of nodules in roots
4. A student performed an experiment to determine the percentage of humus in a soil sample. The following results were obtained.
- Mass empty dish = 50g
- Mass of dish + soil = 200g
- Mass of dish + soil after heating = 170g
What is the percentage of humus in the soil?

- A. 15% B. 30% C. 20% D. 90%
5. Mostly an enzyme is a _____ in mature
A. Protein B. Carbohydrate C. Lipid D. Vitamin.
6. Blood rich in the products of digestion enters the liver through
A. Hepatic vein
B. Hepatic portal vein
C. Hepatic artery
D. Renal portal vein
7. Which of the following represents the correct order of taxonomic ranks starting with the largest?
A. Kingdom, phylum, class, order, family, genus, and species
B. Kingdom, phylum, class, family, order, genus, and species
C. Species, genus, family, order, class, phylum, kingdom
D. Species, genus, order, family, class, phylum, kingdom.
8. The basic unit of chlorophyll is?
A. Nitrogen B. Magnesium C. Iron D. Potassium
9. Biological control is preferred to use instead of insecticides in pest control management.
This is because insecticides;
A. Are quite expensive
B. Are indiscriminate in their action
C. Require skill to use
D. Make the soil fertile
10. Which one of the following fruits represents a capsule?
A. Bean pod B. Cassia C. Dutch man's fruit D. Coconut
11. By which process does oxygen move from the leaf cells to the air spaces?
A. Diffusion
B. Active transport
C. Osmosis
D. Capillarity
12. Which one of the following parts is most important in promoting insect pollination?

- A. Calyx B. Stamens C. Corolla D. Pistil

13. Which one of the following processes is involved in the absorption of minerals by sea plants

- A. Photosynthesis
B. Active transport
C. Osmosis
D. Diffusion

14. Which one of the following is not a function of soil air?

- A. Provides oxygen for root respiration
B. Provides nitrogen for nitrogen fixing bacteria
C. Used by soil-micro-organisms
D. Used in flocculation of clay

15. A student used a hand lens to observe an ant. The actual length of the ant is 0.6cm. On observing the ant through the hand lens, it was 6.8cm long. What was the magnification of the image?

- A. X7.2 B. X6.2 C. X11.33 D. X 0.09

16. Clean saliva was collected in a clean test-tube. Sodium hydroxide solution was added to it followed by copper II sulphate solution. Which of the following is likely to be observed? The mixture turns to;

- A. White precipitate
B. Blue solution
C. Purple solution
D. Blue – black solution

17. Which one of the following processes does not occur in the liver of an adult mammal.

- A. Production of red blood cells
B. Conversion of glucose to glycogen
C. Production of bile salts
D. Deamination

18. Plant cells differ from animal cells by possession of;

- A. Cell membrane B. Nucleus C. Vacuoles D. Chloroplasts

19. Which one of the following adaptations facilitate the diffusion of carbon dioxide in a leaf?

- A. Numerous chloroplasts in palisade cells and net work veins
- B. Blood lamina and presence of air spaces in the spongy mesophyll layer
- C. Net work of veins and water tight cuticle
- D. Elongated palisade cells and a waxy cuticle

20. Which one of the following organs has a double blood supply?

- A. Pancrease
- B. Liver
- C. Kidney
- D. Spleen

SECTION B

21. (a) What is an enzyme?

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(1 mark)

(b) State three factors which affect enzyme action.

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(3 marks)

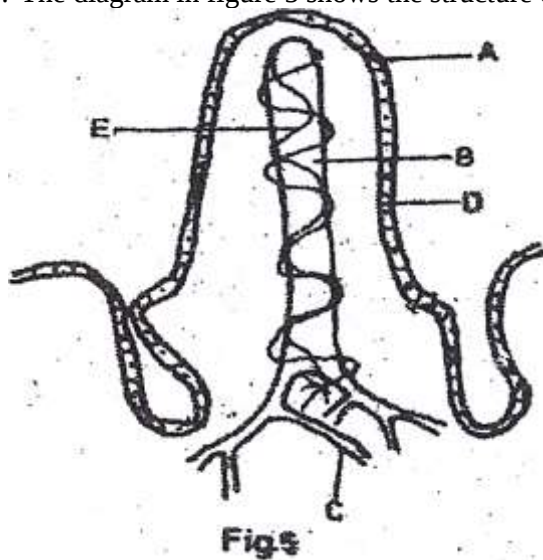
(c) The optimum pH for enzyme X is 2.00 and for enzyme Y is 9.00. suggest the names of the enzymes X and Y, and name the parts of the alimentary canal where you would expect to find each enzyme.

	Name of enzyme	Part of alimentary canal the enzyme is found
X		
Y		

(d) State two enzymes in the pancreatic juice, the food substance acted on by each enzyme and the product formed in each case.

Enzyme	Food Substance acted upon	Product formed
(i)		
(ii)		

22. The diagram in figure 5 shows the structure of a villus.



(a) Label parts marked A, B, C and D.

A

B

C

D

(b) What food substance enters

(i) A

(ii) B

(c) State two factors which make a villus an effective absorbing structure.

(i)

(ii)

(d) How does the absorbed food in B reach the general circulation?

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(e) State two nutrients which are absorbed in the gut before reaching the villus.

(i)

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(ii)

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23.(a)Mention three ways of maintaining soil fertility.

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b) State four ways by which soil organisms contribute to soil fertility.

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24. Describe the process of blood clotting

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25. In the table below, compare arteries, veins and capillaries.

Arteries	Veins	Capillaries

SECTION C

26. (a) Draw a well labeled structure of a molar tooth and outline the functions of each part labeled.
- (b) Explain the causes of tooth decay.
- (c) Mention the teeth diseases you know
- (d) How do we care for our teeth?
27. (a) Using a well labeled diagram describe the structure of the heart.
- (b) Describe the events of the cardiac cycle.
25. (a) Define the term transpiration
- b) With the aid of a well labeled diagram, describe an experiment to show that plants transpire
- c) Suggest five ways how plants reduce transpiration in their habitats.