BIOLOGY

FORM 2

END-YEAR EXAMINATION 2017

TIME: 2 HOURS

NAME: ..... CLASS: .....

Instructions

- **This paper consists of three sections A, B and C.**
- **Section A and B carry a maximum of 40 marks each while section C has a maximum of 20 marks. The total is 100%.**
- **Answer all the questions in this paper only in the spaces provided after each question. Answers written elsewhere shall not earn marks. Irrelevant, incorrect spelling and wrong answers will be penalised.**

For examiner's use only

SECTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	40%	
B	40%	
C	20%	
TOTAL	100%	%

This paper consists of 9 printed pages.

Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing

SECTION A

1. Name a branch of biology that deals with the study of phylogenetic relationship of organisms.

   ..... {1 mark}

2. Form 2 students on a field trip, observed an organism with the following features.

i. Formed a mass beneath a rock on a damp surface.

ii. Body mass was differentiated into root like structure, stem and leaves.

a) Name the organism. ..... {1 mark}

b) Name the kingdom to which it belongs ..... {1 mark}

c) Name the structure it uses for absorption of water and mineral salts ..... {1 mark}

3. State one difference between a light and an electron microscope in terms of illumination. {1 mark}

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4. State the functions of the following parts of a light microscope. {2 marks}

a) Condenser .....

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b) Objective lens .....

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5(a) Name one physiological process that takes place only in a living system. {1 mark}

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b) Give the reason for the above answer. {1 mark}

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6. Name two types of cells in a leaf which contain chloroplasts. {2 marks}

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7(a) Name the organelles that could be found in abundance in the cells of: {2 marks}

i) rapidly respiring tissue .....

ii) palisade cells of plants .....

b) State any two similarities of the above given organelles. {2 marks}

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8. In what form are carbohydrates stored in: {2 marks}

a) animals .....

b) plants .....

9. Name the process by which {2 marks}

a) food moves along the alimentary canal .....

b) excess amino acids are broken down in the liver .....

10(a) Enzymes have a precise place on their surface to which substrate molecules get attached called ..... {1 mark}

b) Which property of enzyme arises as a result of the characteristic named in (a) above. {1 mark}

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c) Other than the property named in (b) above, give three properties of enzymes. {3 marks}

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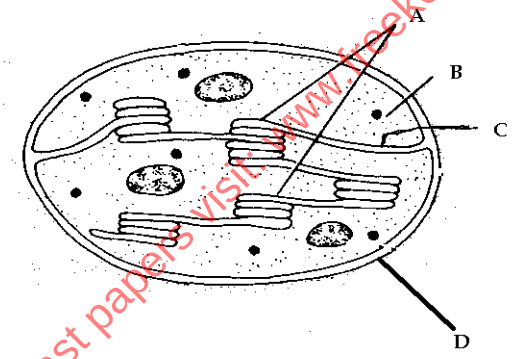
11. Name an animal cell and one plant cell that has no nucleus when fully developed. {2 marks}

Animal cell .....

Plant cell .....

12. The diagram below represents an organelle.



a) Name the organelle ..... {1 mark}

b) Label the parts shown by letters A, B, C & D. {4 marks}

c) State the functions of the part labelled A. {2 marks}

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13. State the three stages of aerobic respiration in the order they occur. {3 marks}

i) .....

ii) .....

iii) .....

14. Name the waste products formed as a result of the breakdown of haemoglobin of red blood cells.

..... {2 marks}

15. What is the type of dentition in crocodiles? {1 mark}

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16. Name the indicator used to confirm the presence of vitamin C in a food sample. {1 mark}

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SECTION B

17. Name a metal ion, a vitamin and an enzyme that could facilitate proper blood clotting. {3 marks}

Metal ion .....

Vitamin .....

Enzyme .....

18. State the function of the following:

a) Cilia in the trachea. {1 mark}

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b) Rings of cartilage in trachea. {1 mark}

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19(a) Which are the excretory and osmoregulatory organelles found in Paramecium? {1 mark}

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b) How do they function? {2 marks}

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20(a) Name a chemical compound from which Hydrogen ions are obtained in plant during photosynthesis

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b) Where does the above chemical reaction take place ..... {1 mark}

c) Write down the chemical formula for the above reaction. {1 mark}

21. Write down the adaptations that speed up gas – exchange in the gills. {4 marks}

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22. Give two functional differences between arteries and veins. {2 marks}

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23. Differentiate between aerobic and anaerobic respiration. {4 marks}

Aerobic respiration	Anaerobic respiration

24. Why would carboxyhaemoglobin lead to death? {3 marks}

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25. Give two main differences between diffusion and active transport. {2 marks}

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26. State any three functions of the mammalian skin. {3 marks}

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27. During an operation, Alwin's pancreatic duct was accidently blocked. It was later noted that digestion was impaired. Explain this observation. {3 marks}

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28. Proteins are amphoteric. Explain this statement. {2 marks}

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29. Explain why blood clotting does not occur inside the blood vessels. {3 marks}

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30. Differentiate between Pinocytosis and Phagocytosis. {2 marks}

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31. Define Homeostasis. {1 mark}

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SECTION C

32. Explain the ways in which the small intestine is adapted to its function. {10 marks}

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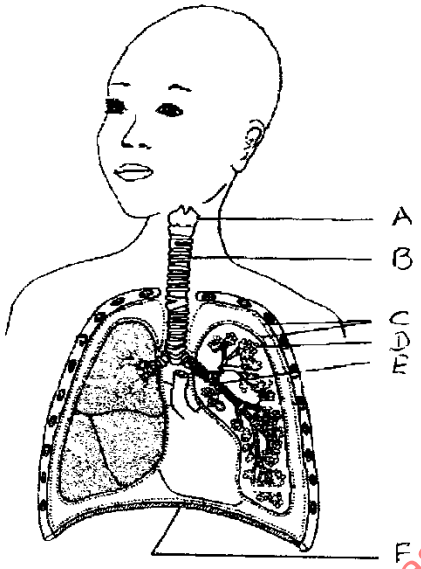
33. The diagram given below shows the human respiratory system.

a) Label the parts A, B, C, D, E & F. {6 marks}



b) Write down the necessary structural features of (D) above for rapid gas exchange. {3 marks}

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c) Which muscular contractions bring about inhalation of atmospheric air. {1 mark}

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