

Name:..... Adm No.....

Signature

Date

**231/2
BIOLOGY
PAPER 2
THEORY
2018
2 HOURS**

FORM THREE

INSTRUCTIONS TO STUDENTS

- (i) Write your name and admission number in the spaces provided
- (ii) This paper consists of section A and B
- (iii) Answer ALL the questions in section A in the spaces provided
- (iv) In section B, answer question 6 (compulsory) and either question 7 or 8 in the spaces provide.

For examiner's use only

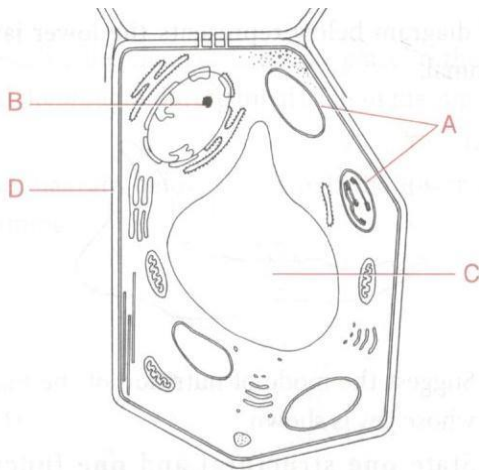
Section	Question	Maximum score	Candidate score
A	1	08	
	2	08	
	3	08	
	4	08	
	5	08	
B	6	20	
	7	20	

	8	20	
	Total	80	

SECTION A (40MKS)

Answer all questions in this section.

1. The diagram below represents a cell seen under an electron microscope . Study it and answer the questions that follow



a) i) suggest the Kingdom from which the cell shown in the diagram was obtained (1 mark)

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ii) Give two reasons for your answer in (a) (i) (2 marks)

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b) Name the parts labelled A and B. (2 marks)

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c) State the functions of the part labelled C. (1 mark)

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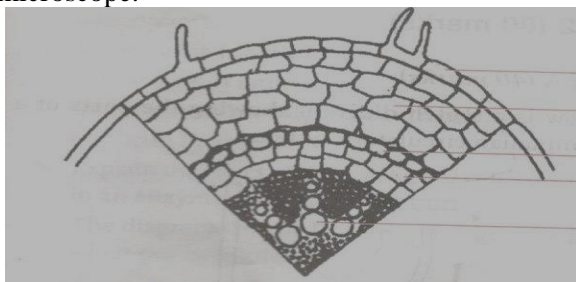
d) Name a structure component of the part labelled D (1 mark)

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e) Give one advantage of the electron microscope that makes it more efficient to use than a Light microscope. (1 mark)

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2. The diagram below shows a portion of the transverse section of a root drawn by a form two Student, as seen under a light microscope.



A
B
C
D

a) Giving a reason name the class of the plant from which the root was obtained. (2 marks)

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b) Name the parts labelled A,B,C,D (3mks)

A

B

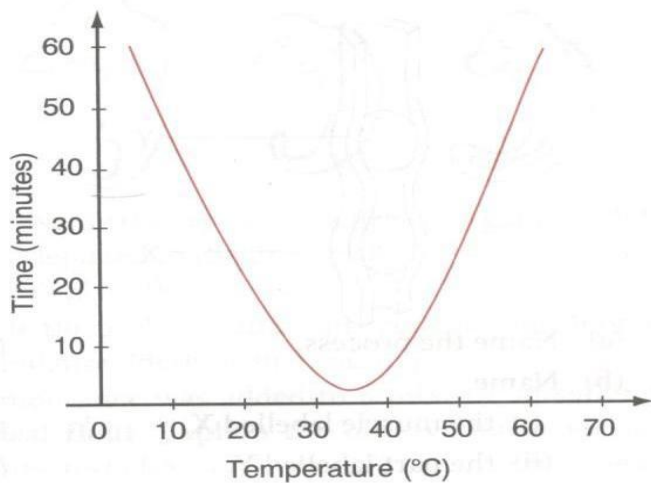
C

D

c) State the function of parts B, C and D (3mks)

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3. In an experiment to investigate the action of pepsin on egg albums, equal amounts of pepsin were added to equal of egg albumen in different test tubes. The test tube were placed I n water baths at different temperatures. The graph below shows the time taken for the enzymes to digest protein at the temperatures.



a) what is the optimum temperature for the enzyme (1mark)

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b) Account for the time taken to digest egg albumen at 60°C (2marks)

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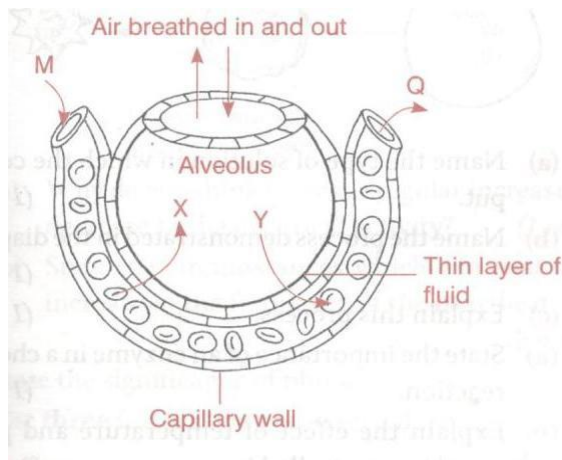
c) With a reason name the form in which enzyme pepsin is secreted (2marks)

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d) State three other factors that affect enzyme controlled reactions (3marks)

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4) The diagram below shows gaseous exchange and flow in the alveolus in the mammalian lungs



a) Name the gases labelled X and Y. (2marks)

X.....

Y.....

b) Explain the difference in concentration of the gases named in (a) at points M and Q (4marks)

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c) Give two reasons why the blood leaving the lungs has less oxygen

(2mks)

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5a) State the dangers of smoking cigarettes to the respiratory tract

(3mks)

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b) The gills of a fish and the skin of the frog are efficient in the exchange of gases. Which characteristic do they have in common? (4marks)

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c) What structures do mangroves use for gaseous exchange

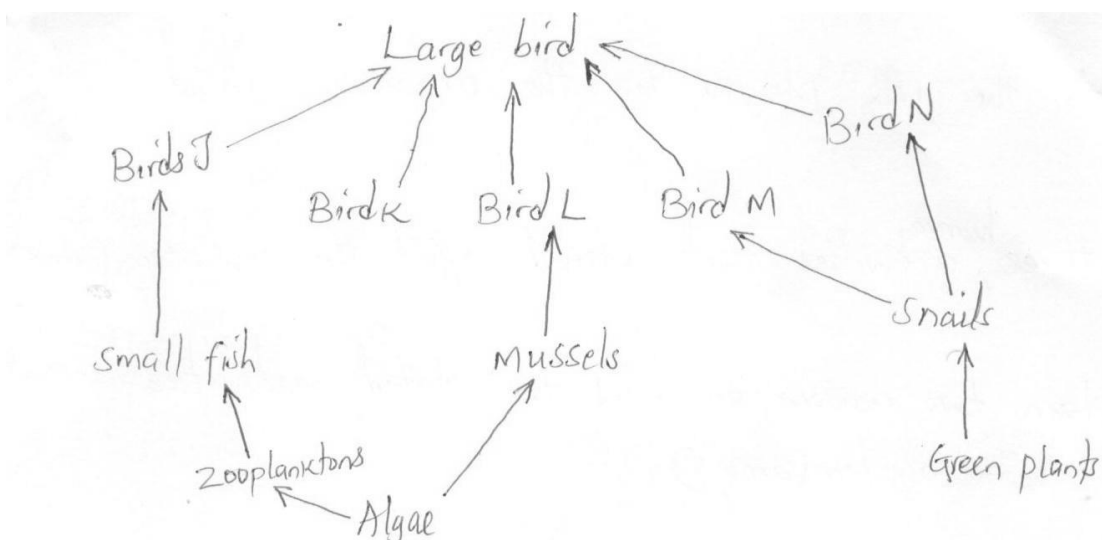
(1mark)

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SECTION B (40MKS)

Answer question 6 and any other question (either 7 or 8 in spaces provided)

6. After an ecological study of feeding relationships, students constructed the food web below.



- a) Name the process through which energy from the sun is incorporated into the food web. (1mark)

- b) State the mode of feeding of birds in the food web. (1mark)

- c) Name two ecosystem in which the organisms in food web lives (2marks)

- d) From the information in the food web, construct three food chain with large bird as a quaternary consumer. (3marks)

- e) State three likely possible occurrences that would happen to the organisms in the food web if bird M migrated (3marks)

- f) Not all the energy from one trophic level is available to the next trophic level. Explain (2marks)

- g) (i) Two organisms which play a role in the ecosystem are not included in the food web. Identify the two organisms. (2marks)

- (ii) State the role played by the organisms in g (i) above. (1mark)

- h) (i) State three human activities that would affect the ecosystem (3marks)

- ii) Explain two reasons on how the stated activities would affect the ecosystem (2marks)

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