

Name: .....

Admission No..... Class..... Date.....

231/2

**BIOLOGY**

**PAPER 2**

**TIME: 2 HOURS**

**NOVEMBER 2021 EXAMINATION**

**INSTRUCTIONS TO CANDIDATES:**

- Write your name and Admission number in the spaces provided.
- Answer *all* the questions in Section A in the spaces provided.
- In section B answer questions 6 (compulsory) and either question 7 or 8 in the spaces provided.

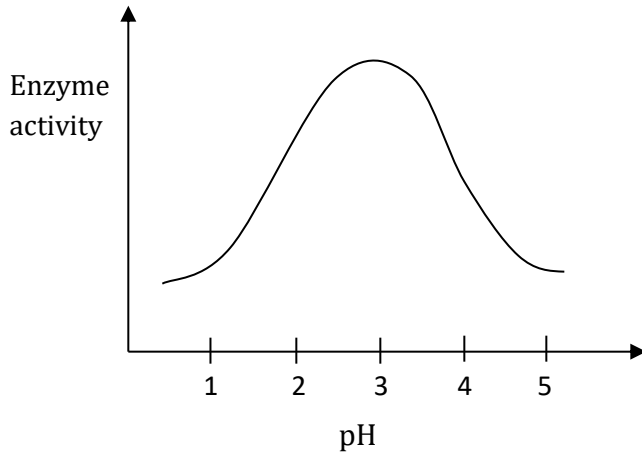
**For Examiner's Use Only:**

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
	<b>TOTAL</b>	<b>80</b>	

**SECTION A (40 Marks)**

Answer *all* questions in this section in the spaces provided.

1. (a) The figure below shows the effect of pH on an enzyme catalysed reaction.



(i) State the pH at which the enzyme is most active..... (1 mark)

(ii) Name **one** enzyme likely to be the one in the figure above and suggest the part of the alimentary canal where it is found. (2 marks)

Name.....

Location in the alimentary canal.....

(iii) Name the digestive juice that contains the enzyme. (1 mark)

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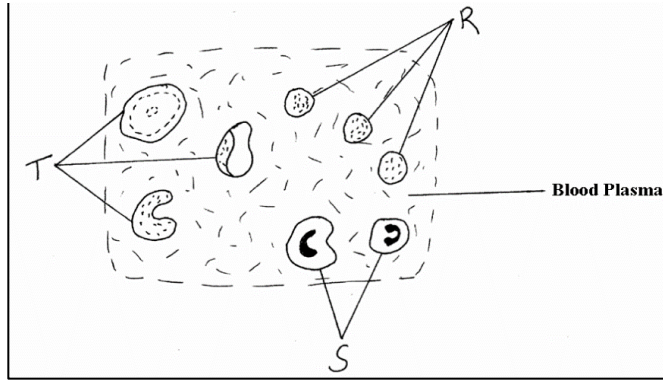
b) Explain how temperature affects the rate of enzyme controlled reactions (3 marks)

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c) What is enzyme specificity? (1 mark)

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2. The figures below represent mammalian tissue as seen under a light microscope.



(a) Identify the tissue ..... (1 mark)

(b) Name the cells represented by (3 marks)

R.....

S.....

T.....

(c) State the function of structure S and R. (2 marks)

S .....

R.....

(d) Explain **one** adaptations of structure T to its function. (1 mark)

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(e) Name one defect of the circulatory system. (1 mark)

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2. (a) Define the term photosynthesis (1 mark)

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(b) State two raw materials of photosynthesis (2 marks)

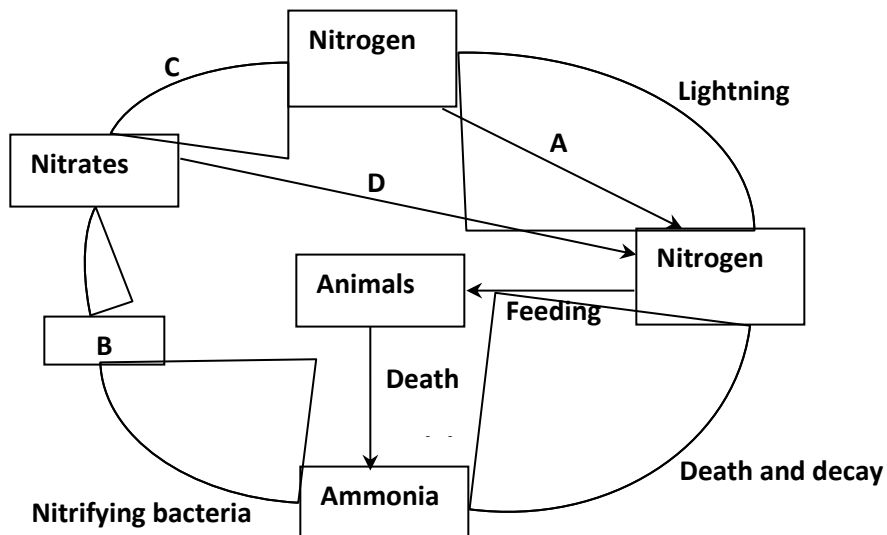
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(c) State two factors that affect the rate of photosynthesis

(2 marks)

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d) Describe briefly the light stage of photosynthesis

(3 marks)

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4. The diagram below represents the nitrogen cycle.



(a) Identify the processes labelled **A** and **D**.

(2 marks)

**A** .....

**D** .....

(b) Name the compound represented by **B**. .... (1 mark)

(c) Name the group of organisms labelled **C**. .... (1 mark)

(d) (i) Name the group of plants that promote process **A**

..... (1 mark)

(ii) In which part of the plant does process **A** take place?

(1 mark)

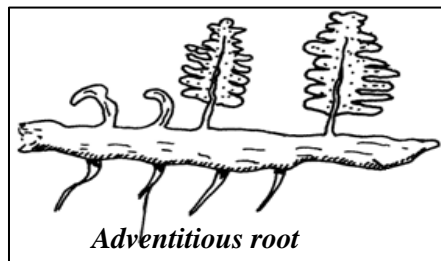
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(e) How would excess pesticides in the soil interfere with process **A**

(2 marks)

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5. Below is a diagram of a plant a student collected while carrying out an ecological study.



(a) With reasons identify the division into which the students classified the plant.

Division ..... (1mark)

Reasons ..... (2marks)

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(b) (i) **Name** the structure that produces spores in this plant.

(1mark)

.....

(ii) State **two** differences between the plant division above and that of the division *spermatophyta*.

(2 marks)

	<b>Spermatophyta</b>

c) Give **two** distinguishing features of class *Amphibia*

(2 marks)

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**SECTION B (40 marks)**

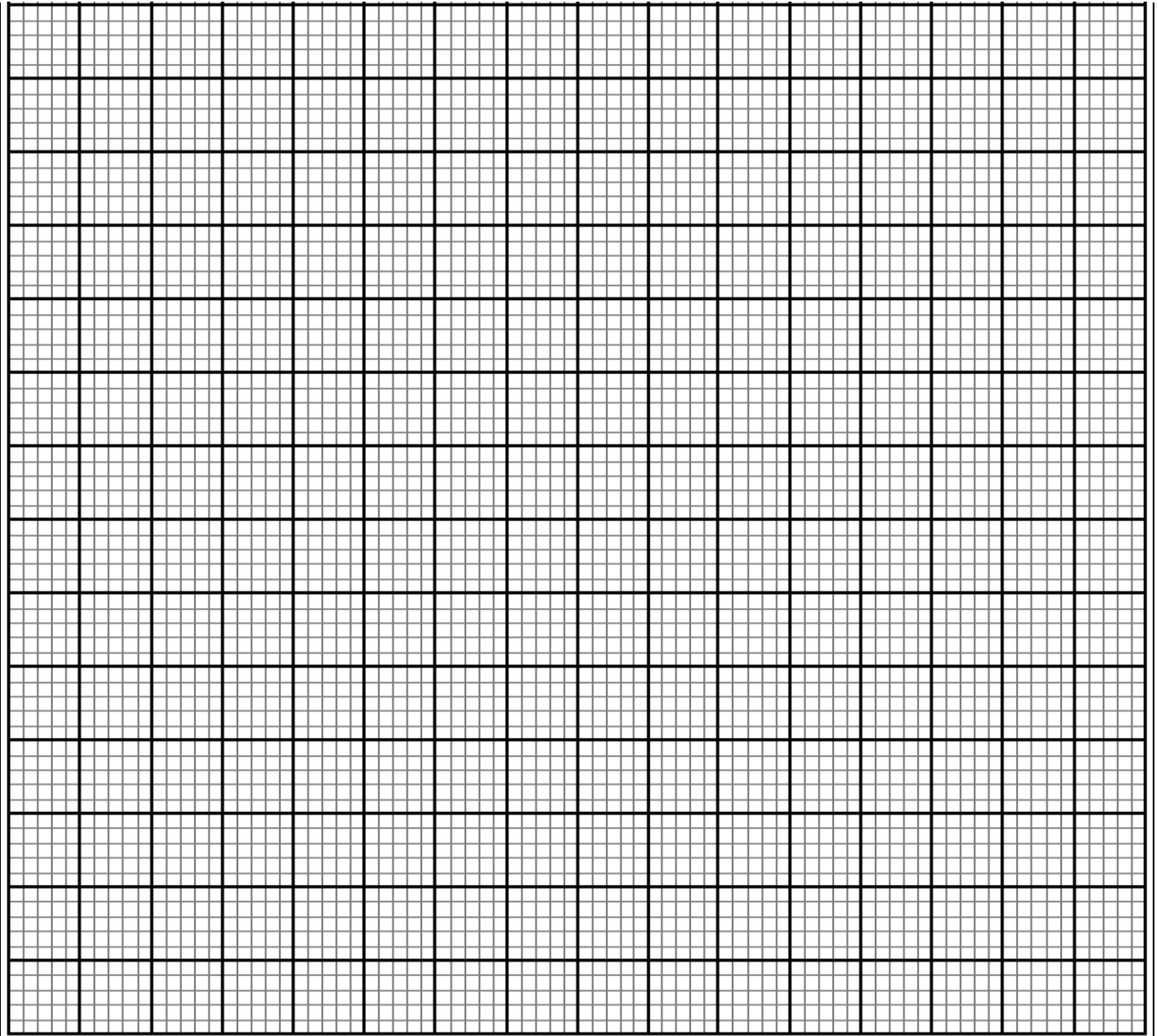
Answer question **6 (compulsory)** and **either** question **7** or **8** in the spaces provided.

6. The table **below** shows how the quantities of sweat and urine vary with external temperature.

External temperature °C	0	5	10	15	20	25	30	35
Urine cm <sup>3</sup> /hr	100	90	80	70	60	50	40	30
Sweat cm <sup>3</sup> /hr	5	6	10	20	30	60	120	200

(a) On the same graph, plot the quantities of urine and sweat produced against the external temperature.

(7 marks)



(b) At what temperature are the amounts of sweat and urine produced equal? (1 mark)

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(c) What happens to the amount of sweat produced as the temperature rises? Explain the observation. (3 marks)

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(d) Explain the observation made on the amount of urine produced as the temperature

increases.

(3 marks)

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(e) How does the skin regulate temperature?

(6 marks)

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7.a) What is meant by the term digestion

(2 marks)

b) Describe how mammalian small intestine is adapted to its function

(18mks)

8. a) Explain how xerophytes are adapted to their habitats

(10 marks)

b) Describe how insect pollinated flowers are adapted to pollination.

(10 marks)

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