

NAME:.....INDEX NO:.....

SIGNATURE:.....

553/1
 BIOLOGY
 THEORY
 PAPER 1
 MAY 2019
 2 ½ HOURS

KCB MOCK EXAMINATIONS, 2019

UGANDA CERTIFICATE OF EDUCATION

BIOLOGY

PAPER 1

2 HOURS 30 MINUTES

INSTRUCTIONS TO CANDIDATES

- Answer **ALL** questions in Section **A** and **B**, plus **TWO** questions in Section **C**.
- Answers to Section **A** must be written in the space provided at the end of the Section.
 Answers to Section B must be written in the space provided.

FOR EXAMINER'S USE ONLY.		
SECTION	MARKS	EXAMINER'S SIGNATURE
A:		
B: NO. 31 NO. 32 NO. 33		
C: NO. NO.		
TOTAL		

SECTION A

1. The best method to prevent gully erosion on a cultivated hill is
 - A. mulching
 - B. tree belts
 - C. strip cropping
 - D. contour ploughing

2. The leaves of mimosa pudica fold when touched. This is an example of a
 - A. negative phototropism
 - B. positive thigmotropism
 - C. nastic response
 - D. tactic response

3. The following belong to the same group of organisms except:
 - A. penicillium
 - B. entamoeba
 - C. trypanosome
 - D. plasmodium

4. Which one of the following is true of commensalism?
 - A. Both organisms benefit
 - B. one organism benefits and other is harmed
 - C. one organism benefits and other is unharmed
 - D. one organism suffer some harm

5. Which of the following are products of anaerobic respiration in plants?
 - A. Ethanol, carbondioxide, energy
 - B. Carbondioxide, water, energy
 - C. Lactic acid, carbondioxide
 - D. Ethanol, carbondioxide, water

6. Enzymes differ from other catalysts because enzymes
 - A. are required in small amounts
 - B. are proteins in nature
 - C. speed up reactions
 - D. respond to temperature changes

7. Universal recipients are said to be with blood group AB because:
 - A. They have antigens
 - B. They have both antibodies **a** and **b**
 - C. They ate no antibodies
 - D. They have both antigens and antibodies

8. Which of the following increases in muscle cells when they are lacking enough oxygen?
 - A. Bicarbonate ions
 - B. Lactic acid
 - C. Ethanol
 - D. Urea

9. The concentration of a plant hormone which stimulates shoot growth:
 - A. also stimulates root growth
 - B. causes branching or roots
 - C. causes branching or roots
 - D. also stimulates root growth

23. Figure 2 below shows a set up of an experiment to investigate the action of enzyme catalase on hydrogen peroxide.

Fig. 2.

- Which one of the following observations would likely be made in the above experiment?
- A. Bubbles of colourless gas are given off from test tube Y
 - B. Bubbles of colourless gas are given off from test tube X
 - C. Effervescence seen in test tube Y
 - D. No effervescence seen in test tube X
24. Which part of the kidney nephron does re – absorption of glucose occur?
- A. cerebrum
 - B. medulla oblongata
 - C. hypthalamus
 - D. cerebellum
25. In which part of the kidney nephron does re – absorption of glucose occur?
- A. Distal convulated tubule
 - B. Proximal convulated tubule
 - C. Descending loop of Henle
 - D. Ascending loop of Henle
26. The main reason for including legumes in a crop rotation is to:
- A. improve the level of nitrogen in the soil
 - B. maintain useful bacteria in the soil
 - C. prevent soil erosion
 - D. improve farming methods

The figure 3 shows a vertebra bone. Use it to answer questions 27 and 28.

Fig. 3.

27. Name the type of vertebra shown in the figure.
- | | |
|-------------|-----------|
| A. Atlas | C. Lumbar |
| B. Thoracic | D. Axis |
28. In which part of the body is the vertebra above found?
- | | |
|----------|--------------|
| A. Neck | C. Abdominal |
| B. Check | D. Tail |
29. Production of many pollen grains is an adaptation for:
- | | |
|-----------------------|---------------------|
| A. cross pollination | C. wind pollination |
| B. insect pollination | D. self pollination |
30. In the colonization of a bare rock, the next most likely group of plants after the lichens are the:
- | | |
|-----------|-----------|
| A. grass | C. shrubs |
| B. mosses | D. trees |

ANSWER SHEET FOR SECTION A

1		11		21	
2		12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

SECTION B

31. Six identical potato cylinders measuring 2.0cm in length were each placed in different concentration of sugar solution. After two hours, the potato cylinders were removed from the solutions and re-measured. The table below shows the results.

Concentration of sugar solutions ol^{-1}	Length of potato cylinder after 2 hours (cm)	Difference in length of potato cylinders after 2 hours (cm)
0.1	2.40	
0.2	2.25	
0.3	2.15	
0.4	2.05	
0.5	1.98	

0.6	1.02	
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- (a) Complete the table by filling in the difference in length of each potato cylinder after 2 hours (i.e length after 2 hours subtract initial length). (03mks)
- (b) In the space provided, plot a graph of the difference in length after 2 hours against concentration of sugar solutions. (05mks)

- (c) (i) What was effect of the concentration of sugar solution on the length of the potato cylinders? (04mks)

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- (ii) Explain why concentration of sugar solutions affected the length of the potato cylinders as stated in c(i). (03mks)

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(d) (i) From your graph, determine the concentration sugar that would give no difference in length of a potato cylinder. (02mks)

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(ii) Explain what happens in a potato cylinder when no change in length occurs. (02mks)

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(e) Suggest **one** other observation other than change in size, that would be made on the potato cylinders. (01mk)

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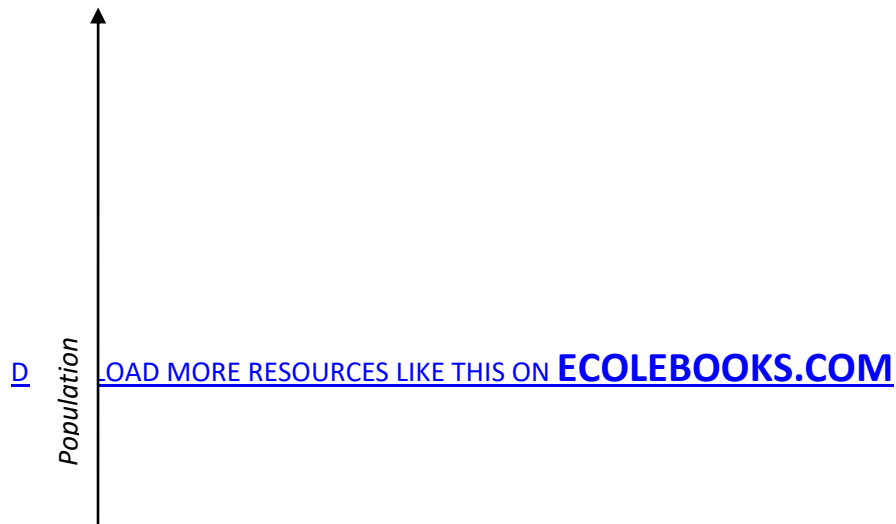
32. (a) Distinguish between predator and prey. (03mks)

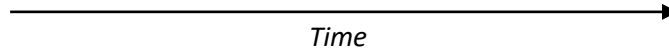
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(b) Figure 4 below shows predator/prey relationship. Study the figure and answer the questions that follow.





(i) Describe the relationship between the predator and prey. (03mks)

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(ii) Explain the relationship of the predator and prey describe in b(i) above. (04mks)

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(iii) Name **two** other external factors that may affect the population of the prey in the habitat. (02mks)

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33. (a) Distinguish between endocrine and exocrine glands. (02mks)

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(b) Below is a diagram showing the location of some endocrine gland.

(i) Name glands labelled A to D. (02mks)

A:.....

B:.....

C:.....

D:.....

(ii) Name the hormone produced by each gland. (02mks)

A:.....

B:.....

C:.....

D:.....

(c) Give the effects of the hormones secreted by gland labelled D. (2mks)

(i).....

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(ii).....

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SECTION C

Answer two questions only from this section.

34. (a) Describe inhalation and exhalation in a bony fish. (11mks)

(b) How is the respiratory surface in fish adapted to its functions? (04mks)

35. (a) Describe the structure of the different types of bird's feathers, stating the function of each type. (08mks)

(b) What factors contribute to bird's ability to fly? (07mks)

36. (a) What is excretion? (02mks)

(b) With the aid of a labelled diagram, describe the functioning of the kidney in excretion. (13mks)

37. Describe an experiment to show that oxygen is produced during photosynthesis. (15mks)

END