

THE ELITES JET



231/2

BIOLOGY PRE-MOCK

Paper 2

March 2025 – Time: 2 hours

Name Adm No..... Class.....

School..... Date..... Sign.....

Instructions to Candidates

- Write your name and admission number in the spaces provided above.
- Sign and write the date of examination in the spaces provided above
- This paper consists of **two** sections; **A** and **B**
Answer all the questions in section **A** in spaces provided
- In section **B**, answer question **6** (**compulsory**) and either question **7** or **8** in the spaces provided after question **8**.
- This paper consists of **12** printed pages
- Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
- Candidates should answer all the questions in English.

For examiners use only

Section	Question	Maximum Score	Candidate's Score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7/8	20	
Total score		80	

1. In human beings, sickle anaemia is a disorder affecting the red blood cells as result of gene mutation.

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- (2 marks)

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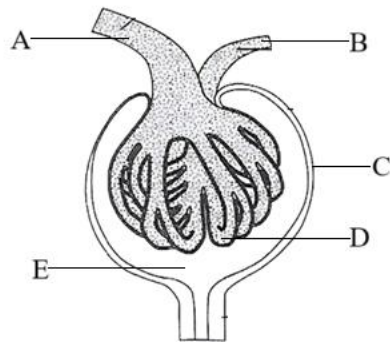
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- [illegible]



2. The diagram below represents part of the kidney nephron. Study it



a) Name the parts labeled B and D (2 marks)

B.....

D.....

b) Name the process that takes place in the part labeled D (1 mark)

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c) How is the part labeled D adapted to carry out the process named in (b) above? (2 marks)

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d) Give the structural difference between A and B (1 mark)

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e) Name the hormone that increases the permeability of the renal tubule to

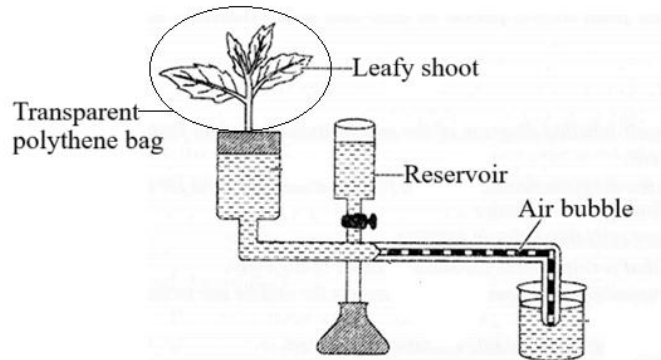
i) Water (1 mark)

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ii) Solutes (1 mark)

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3. A group of students used the set up below to investigate how a certain environmental factor affects the rate of transpiration in a terrestrial plant.



- a) Identify the environmental factor whose effect was being investigated (1 mark)

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- b) State the observation made by the student (1 mark)

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- c) Account for the observation stated in (b) above (4 marks)

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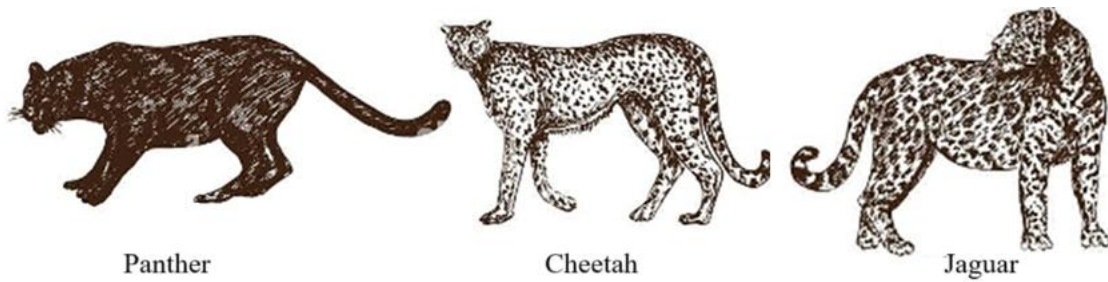
- d) Give two limitations of using potometer to determine the rate of transpiration (2 marks)

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4. The diagrams below represent some members of cat family that are found in different continents. Examine them.



- a) Identify the piece of evidence of organic evolution based on animals illustrated above (1 mark)

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- b) Explain how the piece of evidence named in (a) supports evolution (4 marks)

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- c) Describe emergence of flightless birds according to Lamarck's theory (3 marks)

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5. During copulation, a million sperms are always produced yet only one fertilises the ovum.

a) Explain the significance of producing a million sperms

(2 marks)

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b) Describe the events which take place when the first sperm cell comes into contact with the egg cell in the oviduct

(4 marks)

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c) Explain the role of corpus luteum in implantation

(2 marks)

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SECTION B (40 Marks)

Answer question 6 (compulsory) and either 7 or 8 in the space provided after question 8

6. In an ecological study, grasshopper population and that of the crows (birds that feeds on grasshopper) was estimated in a certain grassland area over a period of one year. The results are as shown in the table below.

Month	J	F	M	A	M	J	J	A	S	O	N	D
No. of adult grasshoppers $\times 10^2$	90	20	11	25	2500	1652	120	15	10	35	1192	192
Number of crows	4	2	0	1	8	22	7	2	1	1	5	5
Amount of rainfall(mm)	20	0	55	350	520	350	12	10	25	190	256	256

- a) What is the relationship between the amount of rainfall and grasshopper population? (1 mark)

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- b) Account for the relationship stated in (b) above (2 marks)

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- c) If the data was used in the construction of pyramid of numbers, what would be the trophic level of:

- i) Grasshopper (1 mark)

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- ii) Crows (1 mark)

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iii) Grass (1 mark)

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d) Explain the relationship between population of grasshopper and crows. (3 marks)

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e) State what would happen if a predator for grasshopper entered the study area. (2 marks)

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f) If the area studied was one square kilometre, state the methods that could be used to estimate the population of crows and grasshoppers. (1 mark)

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g) What is carrying capacity as used in ecology? (2 marks)

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h) Why would the carrying capacity of wild animals in Woodland grassland be higher than that of cattle (2 marks)

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- i) State two possible effects of interspecific competition. (2 marks)

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7. (a) Discuss economic importance of members of Kingdom fungi (10 marks)

- (b) Describe the process of primary growth in plants (10 marks)

8. Discuss how human breathing system is adapted to its function (20 marks)

[illegible]





