

LANET JOINT EVALUATION TEST

231/ 3

- **BIOLOGY** -

Paper 3

Sept. 2022 – 1 ¾ hours

Name Index Number.....

Candidate's Signature..... Date.....

Instructions to Candidates:

- (a) Write your name and Index Number in the spaces provided above.
- (b) Sign and write the date of examination in the spaces provided above.
- (c) Answer **all** questions in the spaces provided in this booklet.
- (d) This paper consists of 6 printed pages.
- (e) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
- (f) Candidates should answer the questions in English.

2022

For Examiner's Use Only

Question	Maximum Score	Candidate's Score
1	13	
2	11	
3	16	
Total Score	40	

Turn over

1. You are provided with 250ml beaker, four test tubes, solutions labeled D and E, Iodine and Benedict's solutions. Half fill the beaker with hot water provided to create a hot water bath.

(I) Label the four test tubes as follows:

(i) Test tube 1. **D + iodine**

(ii) Test tube 2. **D + E + iodine**

(iii) Test tube 3. **D + Benedict's solution**

(iv) Test tube 4. **D + E + Benedict's solution**

(II) Put 1cm^3 of solution D in each of the four test tubes.

(III) To the **D + iodine** test tube, add one drop iodine solution and shake to mix.

(IV) To the **D + E + iodine** test tube, add 1cm^3 of solution E and two drops of iodine solution

(V) To the **D + Benedict's solution** test tube, add 1cm^3 of Benedict's solution and shake to mix

(VI) To the **D + E + Benedict's solution** test tube, add 1cm^3 of solution E and 1cm^3 Benedict's solution. Shake to mix.

(VII) Observe the changes in each of the four test tubes

(VIII) Put all the four test tubes in the hot water bath and observe carefully for about five minutes

a) Record the observations and conclusion for each of the four test tubes in the table below (8marks)

NO	TEST TUBE	OBSERVATION	CONCLUSION
1	D + iodine		
2	D + E + iodine		
3	D + Benedict's solution		
4	D + E + Benedict's solution		

b) What was the role of each of the following in the experiment?

(i) Solution **E** (1mark)

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(ii) Hot water bath (1mark)

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c) Give the identity of **E** in human beings (1mark)

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d) Explain the observations made on the reagents tested with Benedict's solution (2marks)

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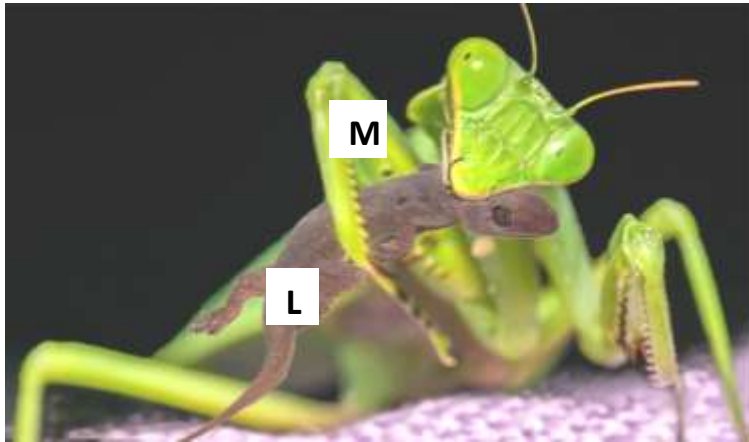
2. The photographs below show organisms that are closely related



a) Identify the evidence for organic evolution exhibited by the two organisms above (1mark)

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b) Observe the **two** organisms interacting in an ecosystem.



i) Identify which of the two animals **M** and **L** will have the least biomass (1mark)

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ii) Give a reason for your answer in (b)(i) above (1mark)

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c) Explain the concept of “Survival for the fittest” in relation to the organisms illustrated in the photograph. (4marks)

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c) Explain **two** visible survival adaptive features for the organisms illustrated in the photograph (4mks)

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3. Study the photographs and answer the following questions.



PLATE 5



PLATE 6



PLATE 7

a) The photograph in Plate 5 shows the germination process in a species of legume.

i) Name the type of germination shown in the photograph. (1mark)

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ii) Give a reason for your answer. (1 mark)

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b) Other than germination the seedling have shown some responses.

i) Name **two** responses shown in the photograph. (2 marks)

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ii) State **one** survival value of each of the response named above. (2 mark)

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c) Examine the photograph in Plate 6 and Plate 7 which show different essential parts of a flower of a species on two different plants.

i) Name the flower parts shown in Plate 6 and Plate 7. (2 marks)

Plate 6.....

Plate 7

b) (i) Name the phenomenon described in the statement above. (1 mark)

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ii) Explain the significance of the phenomena stated in (a)(i) above. (2 mark)

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c) (i) State the mode of pollination of the flower shown in the photograph. (1 mark)

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ii) Give a reason for your answer. (1 mark)

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d) (i) State the type of pollination of the flower shown in the photograph. (1 mark)

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(ii) Give **two** reasons for your answer. (2 marks)

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