

Name Index Number /

231/3
BIOLOGY
 Paper 3
 (PRACTICAL)
 Oct./Nov. 2015
 1¼ hours

Candidate's Signature

Date



THE KENYA NATIONAL EXAMINATIONS COUNCIL
 Kenya Certificate of Secondary Education
BIOLOGY
 Paper 3
 (PRACTICAL)
 1¼ hours



02315160

Instructions to candidates

- Write your name and index number in the spaces provided above.
- Sign and write the date of examination in the spaces provided above.
- Answer all the questions in the spaces provided.
- You are required to spend the first 15 minutes of the 1¼ hours allowed for this paper reading the whole paper carefully before commencing your work.
- Additional pages must **not** be inserted.
- This paper consists of 8 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 Examiner's Use Only

| Question | Maximum Score | Candidate's Score |
|--------------------|---------------|-------------------|
| 1 | 13 | |
| 2 | 14 | |
| 3 | 13 | |
| Total Score | 40 | |



1 Using the pictures of animals provided below, complete the construction of the dichotomous key by filling the blank spaces. (13 marks)



Eagle



Fish



Earthworm



Tortoise



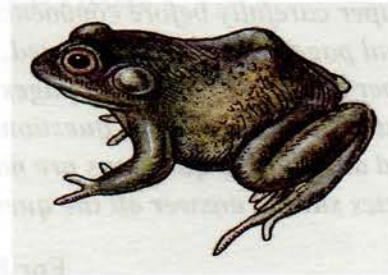
Octopus



Starfish



Spider



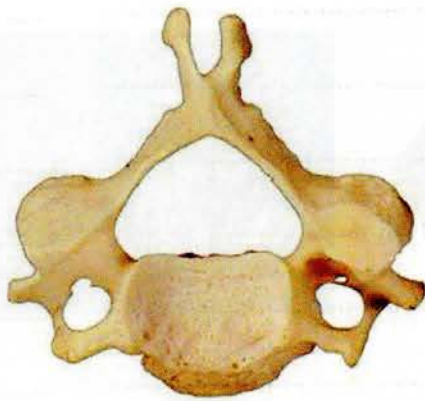
Frog

| Question | Score | Mark |
|----------|-------|------|
| 1 | 13 | |
| 2 | 14 | |
| 3 | 15 | |
| 4 | 16 | |

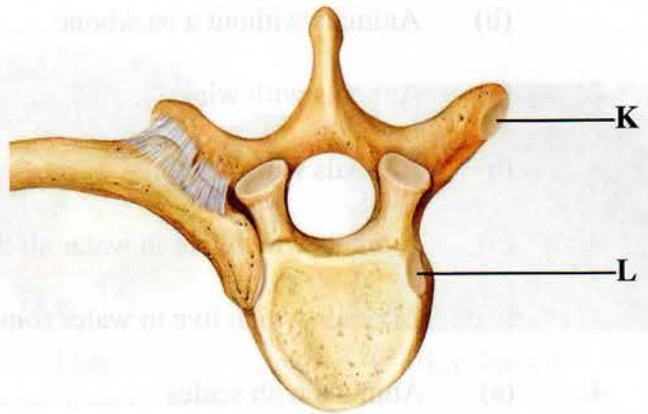


- 1. (a) Animals with a backbone **go to 2**
- (b) Animals without a backbone
- 2. (a) Animals with wings
- (b) Animals without wings
- 3. (a) Animals which live in water all the time
- (b) Animals which live in water some time
- 4. (a) Animals with scales
- (b) Animals without scales
- 5. (a) Animals with legs
- (b) Animals without legs **go to 7**
- 6. (a) Animals with six legs **Butterfly**
- (b) Animals with eight legs
- 7. (a) Animals with a shell **Snail**
- (b) Animals without a shell
- 8. (a) Animals with a jelly-like body
- (b) Animals without a jelly-like body
- 9. (a) Animals with a segmented body
- (b) Animals without a segmented body **Octopus**

2 Below are pictures of three mammalian vertebrae.



F



G



H

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(a) Identify the type of vertebra labelled

F (1 mark)

G (1 mark)

H (1 mark)

(b) Label **five** parts of the vertebra labelled **H**. (5 marks)

(c) Name the articular facets labelled **K** and **L**.

K (1 mark)

L (1 mark)

(d) How does each of the parts of a vertebra enable a mammalian skeleton to carry out its functions? (4 marks)

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- 3 You are provided with a 250 ml beaker, four test tubes, solutions labelled **D** and **E**, iodine and Benedict's solutions.

Half fill the beaker with the 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 1 cm³ of solution **D** in each of the four test tubes.
- (III) To the **D+Iodine** test tube, add one drop of iodine solution and shake to mix.
- (IV) To the **D+E+Iodine** test tube, add 1 cm³ of solution **E** and two drops of iodine solution. Shake to mix.
- (V) To the **D+Benedict's solution** test tube, add 1 cm³ of Benedict's solution and shake to mix.
- (VI) To the **D+E+Benedict's solution** test tube, add 1 cm³ of solution **E** and 1 cm³ of 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. (8 marks)

| 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 (1 mark)

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- (ii) hot water bath (1 mark)

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

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

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