

Name ..... Index Number ..... / .....

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

Candidate's Signature .....

Date .....



**THE KENYA NATIONAL EXAMINATIONS COUNCIL**  
 Kenya Certificate of Secondary Education  
**BIOLOGY**  
 Paper 3  
 (PRACTICAL)  
 1¾ 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 1¾ 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**

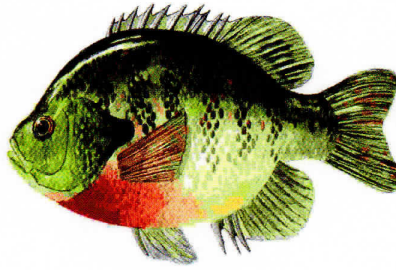
Question	Maximum Score	Candidate's Score
1	13	
2	14	
3	13	
<b>Total Score</b>	<b>40</b>	



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



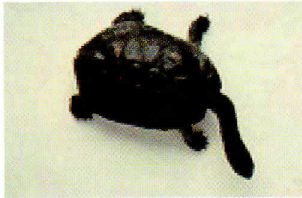
Eagle



Fish



Earthworm



Tortoise



Octopus



Starfish



Spider



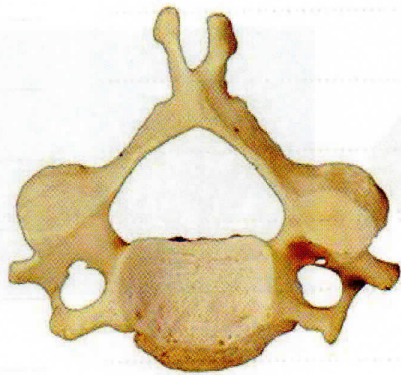
Frog

Question	Maximum Score	Score
1	13	
2	14	
3	13	
Total Score	40	

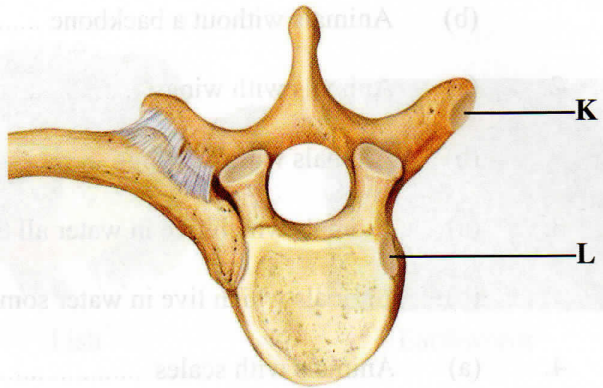


- 1. (a) Animals with a backbone ..... **go to 2**  
(b) Animals without a backbone .....
- 2. (a) Animals with wings .....  
(b) Animals without wings .....
- 3. (a) Animals which live in water all the time .....  
(b) Animals which live in water some time .....
- 4. (a) Animals with scales .....  
(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

(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 cm<sup>3</sup> 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 cm<sup>3</sup> of solution **E** and two drops of iodine solution. Shake to mix.
- (V) To the **D+Benedict's solution** test tube, add 1 cm<sup>3</sup> of Benedict's solution and shake to mix.
- (VI) To the **D+E+Benedict's solution** test tube, add 1 cm<sup>3</sup> of solution **E** and 1 cm<sup>3</sup> 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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