3.5.3 Biology Paper 3 (231/3)

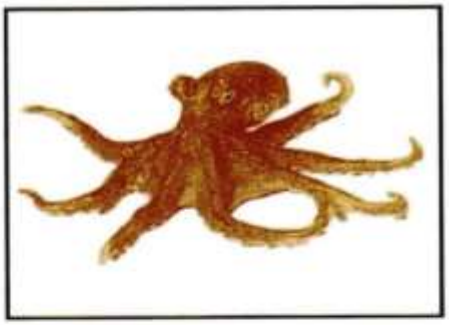
1 Using the pictures of animals provided below, complete the construction of the dichotomous key by filling the blank spaces. (13 marks)

Eagle

Fish

Earthworm

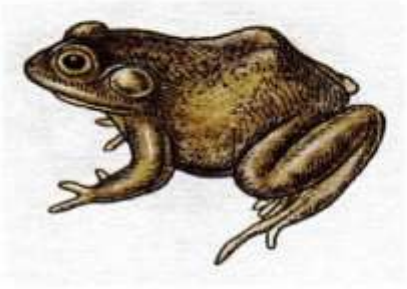
Tortoise



Octopus

Starfish

Spider



Frog

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 ..... _____

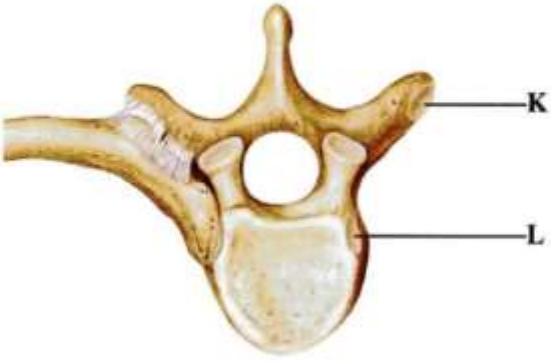
4. (a) Animals with scales ..... _____

   (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)

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^3 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^3 of solution **E** and two drops of iodine solution. Shake to mix.

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

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

(ii) hot water bath. (1 mark)

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

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