Name_____ Teacher_____

Aldenham School

Science Department

13+ Exam - Biology

SAMPLE PAPER

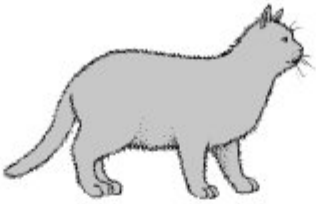
20 Minutes

24 Marks

Q1. The drawings below show eight different animals.



sparrow



cat



dragonfly



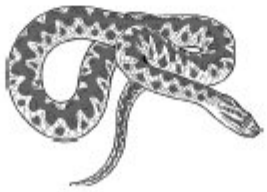
housefly



lizard



squirrel



snake



hawk

not to scale

(a) Put a (ring) around the **two** animals above that do **not** have a backbone.

2 marks

(b) What are the names of **two** mammals above?

1 .....

2 .....

1 mark

(c) (i) What are the names of **two** reptiles above?

1 .....

2 .....

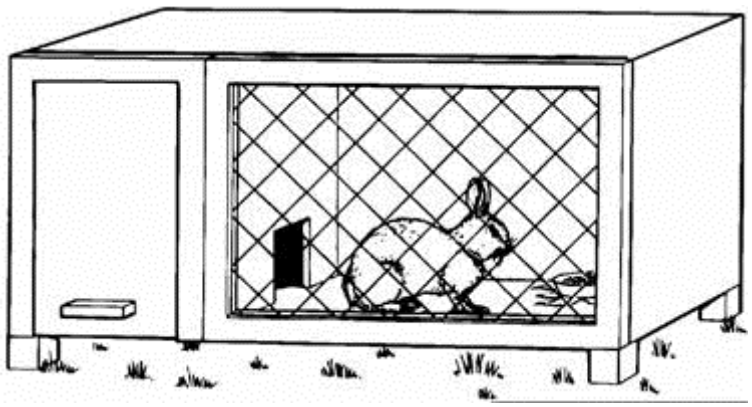
1 mark

(ii) From the drawings, what is **one** feature that all reptiles have?

.....

1 mark
maximum 5 marks

Q2. Andrew put his rabbit's cage on the grass.



A week later, the grass under the cage had turned yellow.

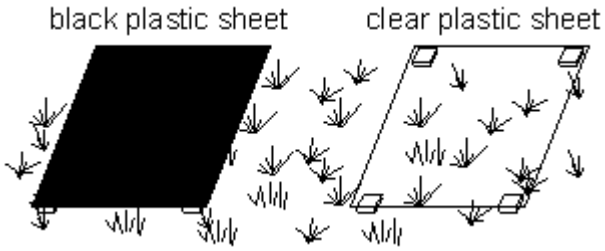
(a) Give **one** reason why the grass had turned yellow.

.....

.....

1 mark

(b) Andrew wanted to test why the grass had turned yellow. He put two sheets of plastic just above another patch of grass. One sheet was black and the other sheet was clear.



A week later, the grass under the black sheet was yellow. The grass under the clear sheet was green.

(i) Explain why he used the clear plastic sheet as well as the black sheet.

.....

.....

1 mark

(ii) Andrew left the black sheet there for several more weeks.
What happened to the grass under it?

.....

.....

1 mark

(c) Tick the boxes by **two** things which **both** rabbits **and** grass plants can do.

they eat ☐

they grow ☐

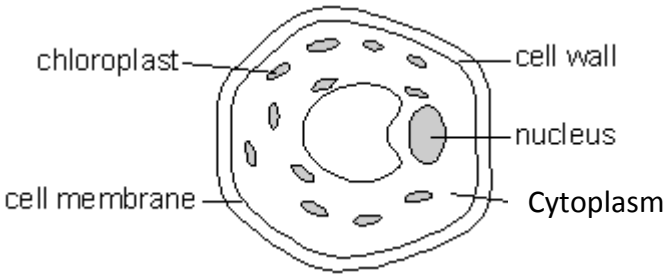
they move from place to place ☐

they reproduce ☐

they breathe in and out ☐

2 marks
Maximum 5 marks

Q3. The diagram shows a plant cell.



(a) (i) The cell is from a leaf. Give the name of the part which is present in this leaf cell but **not** present in root cells.

.....

1 mark

(ii) Give **two** parts, labelled on the diagram, which are **not** present in animal cells.

1. ..... 2. .....

2 marks

(b) The five parts of the cell labelled on the diagram have different functions. In the table below, write the name of the correct part of the cell next to its function. One has been done for you.

function	part of the cell
a place where many chemical reactions take place	cytoplasm
photosynthesis takes place here	
it controls the cell's activities	
it helps to keep the shape of the cell	
it controls substances entering and leaving the cell	

4 marks
Maximum 7 marks

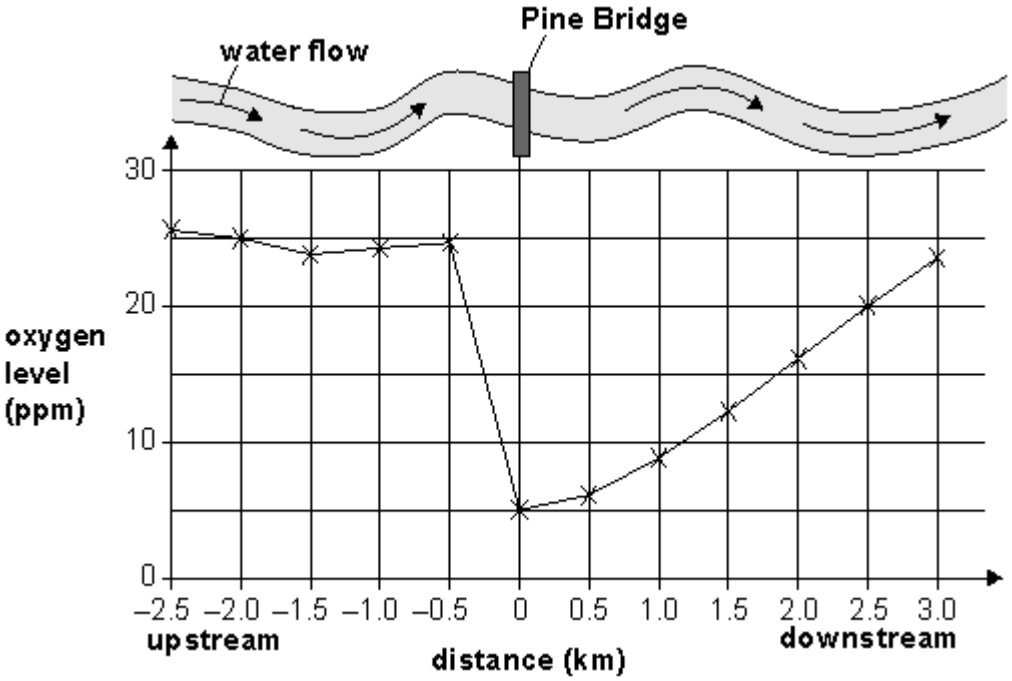
Q4. The information below comes from a newspaper report.

River Pollution

Scientists from the Environment Agency were called to investigate a river.

Local fishermen reported that they had not caught trout in the river at Pine Bridge for many months. There were more algae growing in the river and it had a bad smell.

Scientists measured the oxygen levels in the water upstream and downstream from Pine Bridge. The results are shown below.



(a) (i) What was the oxygen level in the river at Pine Bridge?

..... ppm

1 mark

(ii) Describe what happens to the oxygen level in the river as you travel **downstream** from Pine Bridge.

.....

1 mark

(b) Trout only live in water with oxygen levels higher than 20 ppm.
How far **downstream** from Pine Bridge would you be likely to find trout?
Write the unit.

.....

1 mark

(c) The scientists collected samples of the river animals found at different places.

animals collected	**distance from Pine Bridge (km)**								
	–2.0	**–1.5**	**–1.0**	**–0.5**	**0**	**0.5**	**1.0**	**1.5**	**2.0**
stonefly nymphs	✓	✓	✓	✓					
mayfly nymphs	✓	✓	✓	✓					
freshwater shrimps	✓	✓	✓	✓					✓
caddis fly larvae	✓	✓	✓	✓					
rat-tailed maggots					✓	✓			
sludge worms					✓	✓	✓		
water lice							✓	✓	✓
bloodworms							✓		

Trout only live in water with oxygen levels higher than 20 ppm.
Give the name of one **other** animal that **only** lives in oxygen levels above 20 ppm.
Use the table and the information above to help you.

.....

1 mark

(d) Use the information above.
Name **two** animals that are **only** found when the oxygen level is below 10 ppm.

1. ..... 2. .....

2 marks

(e) In the river, trout are predators. Near Pine Bridge, the number of trout decreased.

Suggest **one** reason why pollution may cause the trout population to decrease.

.....

.....

1 mark
maximum 7 marks