

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.
Dragonfly and housefly are both invertebrate which .

2 marks

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

1 ...**Cats**.....

2 ...**Squirrel**.....

1 mark

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

1 ..Snake.....

2 ..Lizard.....

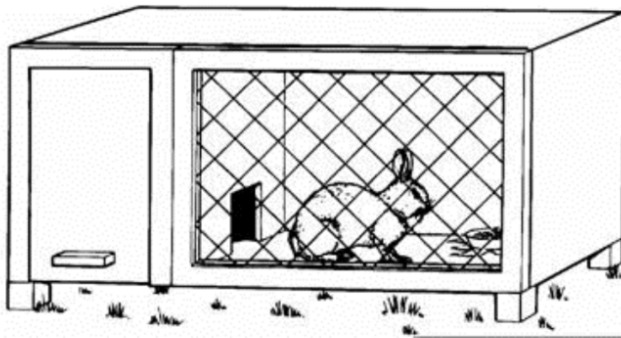
1 mark

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

..All of them have scales on their body.....

1 mark
maximum 5 marks

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



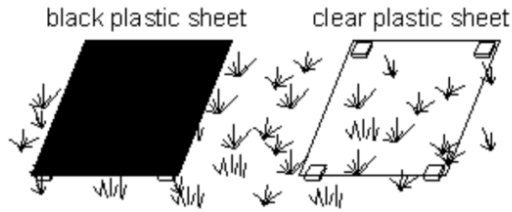
A week later, the grass under the cage had turned yellow.

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

..Grass have turned yellow because of no photosynthesis for a long period of time.....

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.

Clear plastic sheet will allow light to pass and which will help in photosynthesis.....

1 mark

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

The grass under the black sheet after few weeks would turn yellow because of no photosynthesis.....

1 mark

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

they eat

they grow

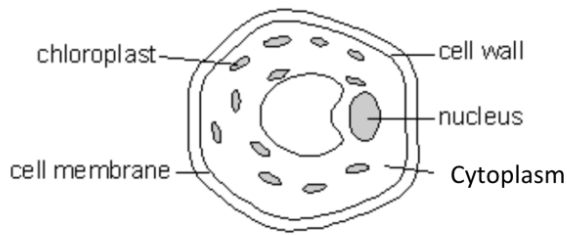
they move from place to place

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.

.Chloroplast.....

1 mark

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

1. .Cell wall..... 2. .Chloroplast.....

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	<u>Chloroplast</u>
it controls the cell's activities	<u>Nucleus</u>
it helps to keep the shape of the cell	<u>Cell wall</u>
it controls substances entering and leaving the cell	<u>Cell membrane</u>

4 marks
Maximum 7 marks

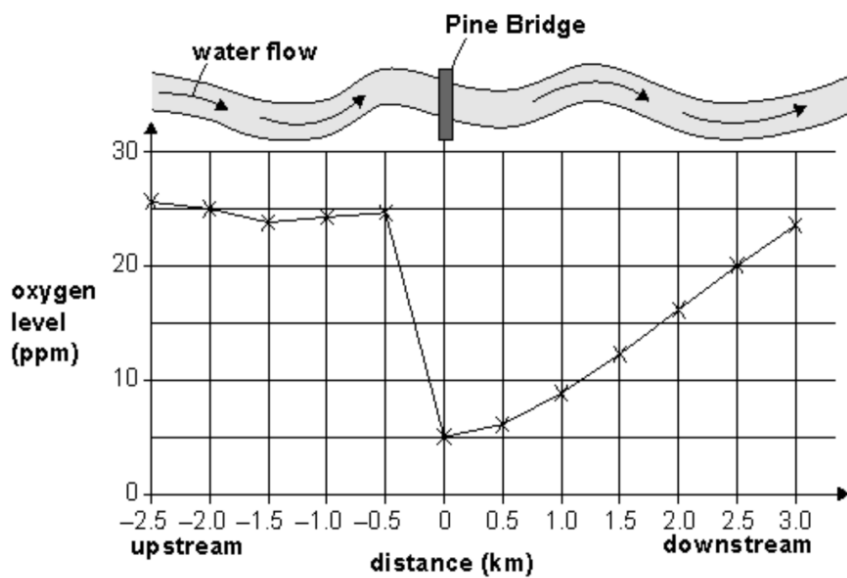
Q4. The information below comes from a newspaper report.

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?

.....5..... ppm

1 mark

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

As you move downstream the oxygen concentration increases under water.

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.

2.5 km downstream from pine bridge.

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.

..mayfly nymphs.....

1 mark

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

1. Red tailed maggots..... 2. sludge worms.....

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.

Pollution may increase BOD, thereby leading to the death of trout as well as other species in the river.....

1 mark
 maximum 7 marks

