



Write your name here

Surname

Other names

# Scholarship Paper

**Subject: Biology**

**Paper:**

**Time: 1 Hour**

**You must have:**

Pen  
Pencil

**Total Marks**

/45

## Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name.
- Answer **all** questions.
- Answer the questions in the spaces provided
  - *There may be more space than you need.*
- Show all the steps in any calculations and state the units.

## Information

- The total mark for this paper is **45**
- The marks for **each** question are shown in brackets
  - *Use this as a guide as to how much time to spend on each question.*

## Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Write your answers neatly and in good English.
- Try to answer every question.
- Check your answers if you have time at the end.

**Section A- Multiple Choice Questions (20 marks)**

*Tick or draw a circle around the letter having the correct answer*

1 Which part of a cell makes glucose?

- A cell membrane
- B chloroplast
- C nucleus
- D vacuole

2 By which process do oxygen and carbon dioxide move between cells and capillaries?

- A breathing
- B diffusion
- C excretion
- D respiration

3 Starch is digested by amylase in the mouth, but it is not digested in the stomach. What is the reason for this?

- A All starch digestion is completed in the mouth.
- B The pH in the stomach is not suitable for the amylase to work.
- C The starch does not stay in the stomach long enough to be digested.
- D The temperature in the stomach is not suitable for the amylase to work.

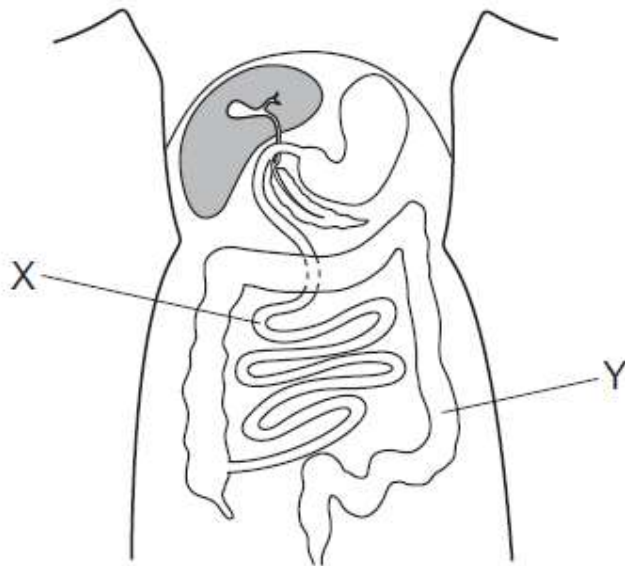
4 Which feature would help a plant to survive in a dry environment?

- A large leaves
- B many stomata
- C small roots
- D thick waxy cuticle

5 Which disease is caused by a virus?

- A AIDS
- B kwashiorkor
- C cholera
- D Rickets

6 The diagram shows part of the human body



Which statement about organs X and Y is correct?

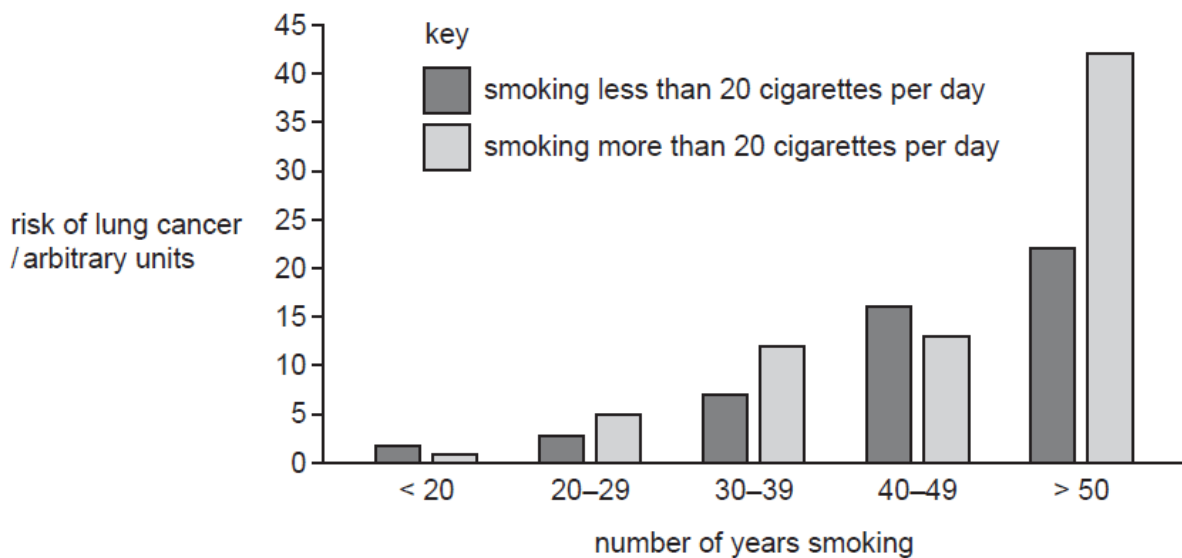
- A X absorbs more water from food than Y.
- B X does not absorb water from food.
- C Y absorbs more water from food than X.
- D Y does not absorb water from food.

7 The table shows the percentage of the daily recommended intake of nutrients in a serving of four foods.

Which food would be the best choice to prevent scurvy?

	percentage of daily recommended intake in a serving of food			
	calcium	iron	vitamin C	vitamin D
<b>A</b>	71	1	0	6
<b>B</b>	24	11	2	73
<b>C</b>	3	3	72	0
<b>D</b>	1	72	1	0

8 The graph shows how smoking different numbers of cigarettes for different lengths of time affects the risk of lung cancer.



Which conclusions are supported by the data in the graph?

- 1 Smoking more than 20 cigarettes per day always increases the risk of lung cancer more than smoking less than 20 cigarettes per day.
- 2 Smoking cigarettes for more years increases the risk of lung cancer.
- 3 Smoking more than 20 cigarettes per day for more than 50 years has the highest risk of lung cancer.

A 1, 2 and 3

B 1 and 2 only

C 1 and 3 only

D 2 and 3 only

9 The diagram shows a food chain in a rock pool.

seaweed → whelks → crabs → seagulls

What will happen if the number of whelks increases?

There will be

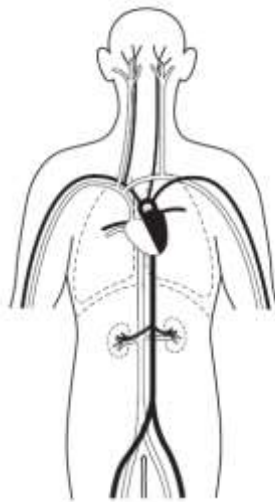
A fewer crabs.

B fewer seagulls.

C more death of whelks.

D less seaweed.

10 The diagram shows some of the blood vessels and other structures in the human body.



The blood vessels shown are all parts of the same

A cell.

B organ.

C organ system.

D tissue.

11 In which part of the body of a mammal does physical or mechanical digestion occur?

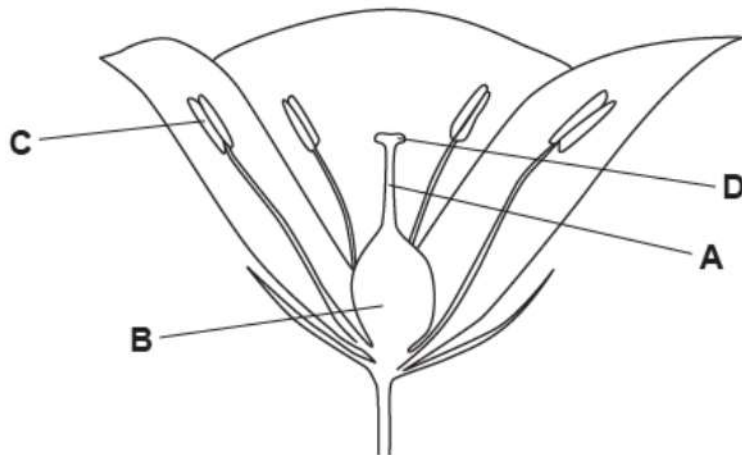
A gall bladder

B liver

C mouth

D pancreas

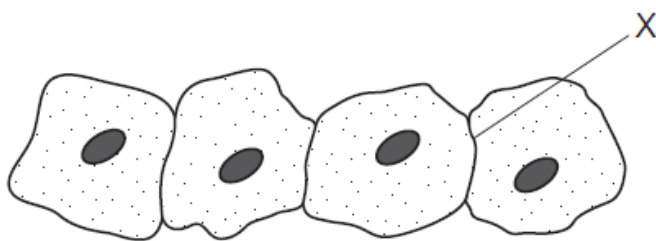
12 The diagram shows a flower.  
In which structure do seeds develop?



13 When a food substance is tested with iodine solution, which colour shows the presence of starch?

- A blue-black
- B brown
- C orange
- D purple

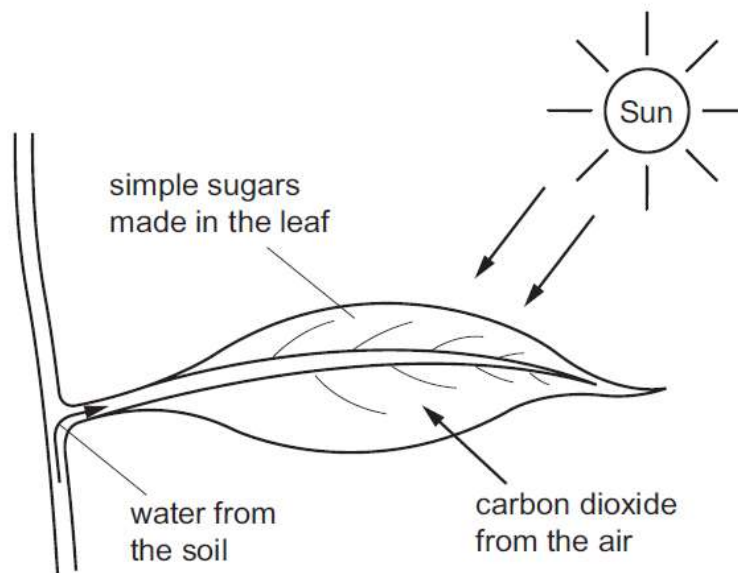
14 The diagram shows four animal cells, as seen under a light microscope.



What will be present at X?

- A one cell membrane
- B one cell wall
- C two cell membranes
- D two cell walls

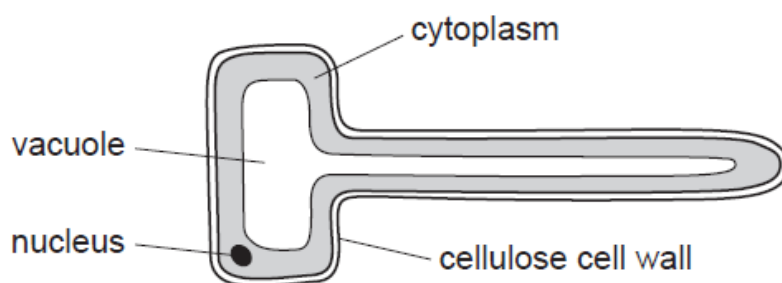
15 The diagram shows a leaf on a plant.



Which characteristic of life is represented by this diagram?

- A excretion
- B nutrition
- C respiration
- D sensitivity

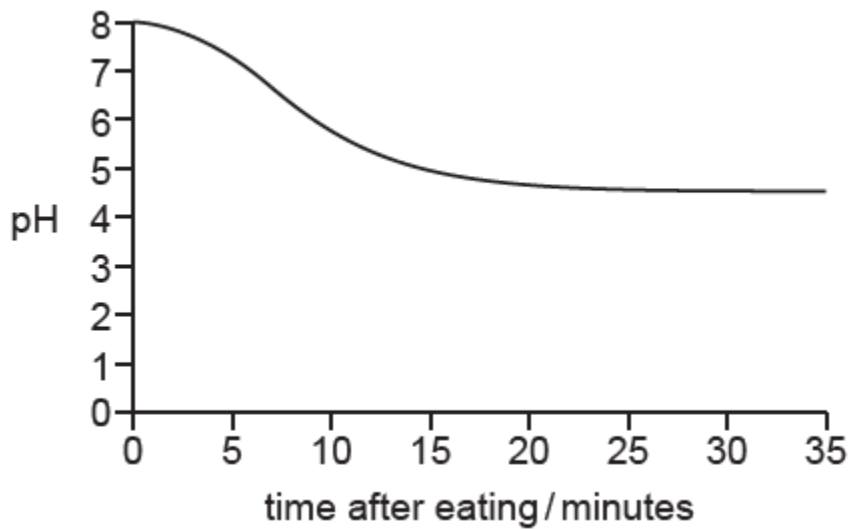
16 The diagram shows a root hair cell.



How is this cell modified for the absorption of water?

- A It has a cellulose cell wall.
- B It has a thin layer of cytoplasm.
- C It has a large surface area.
- D It has a large vacuole.

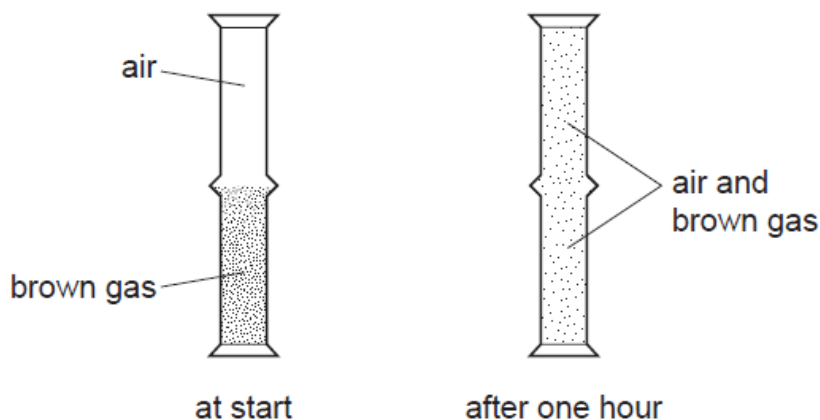
17 The graph shows pH changes in the mouth after eating.



Why is it a good idea to brush teeth after eating?

- A Acidic conditions help bacteria to grow.
- B Acids dissolve tooth's protective layer.
- C Alkaline conditions help bacteria to grow.
- D Alkalis dissolve tooth enamel.

18 A jar of air was placed upside down on top of a jar containing a brown gas as shown.

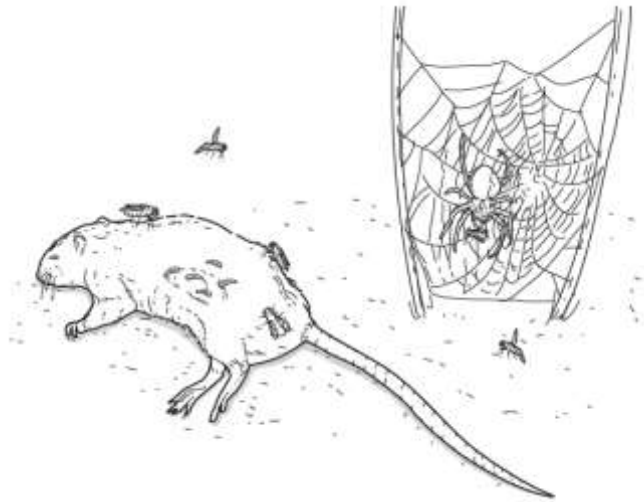


Which process has taken place?

- A diffusion both upwards and downwards
- B diffusion downwards only
- C diffusion upwards only
- D diffusion and osmosis



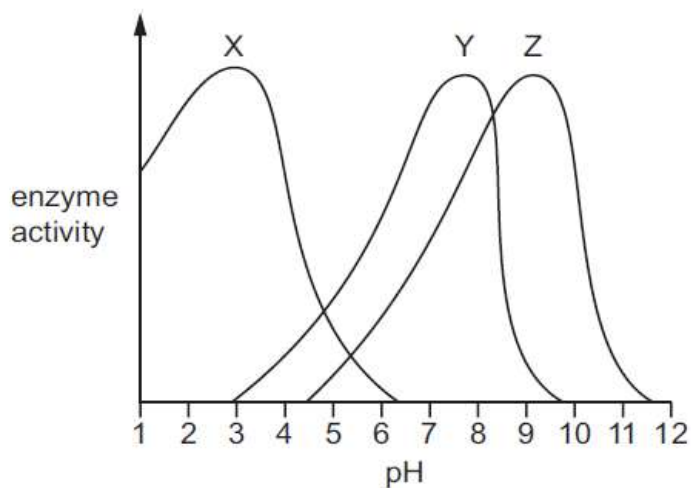
19 The diagram shows organisms feeding on a dead rat and one of the organisms which, in turn, feeds on them.



What is needed to complete the food chain?

- A carnivore
- B consumer
- C predator
- D producer

20 The graph shows the activity of three digestive enzymes at differing pH levels.



Which statement is correct?

- A Enzymes X and Y are both active at pH7.
- B Enzymes X and Z are both active at pH4.
- C Enzymes Y and Z are both active at pH4.
- D Enzymes Y and Z are both active at pH8.

**Section B- Structured Questions (25 Marks)**

21 (a) Humans need fibre (roughage) and mineral ions as part of a balanced diet. Name four other food groups that form part of a balanced diet.

- 1 .....
- 2 .....
- 3 .....
- 4 .....[4]

(b) (i) Name two rich sources of fibre in the human diet

- 1.....
- 2.....[2]

Explain the importance of including fibre in the diet.

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.....[3]

(c) Greater food production has helped the human population of the world to increase. Explain two different ways in which modern farming has resulted in greater food production.

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 .....[4]

[Total: 13]

22 Doctors are concerned that young people in some countries are drinking too much alcohol. Fig.1 shows the percentage of young people who drink alcohol in a city in one of these countries.

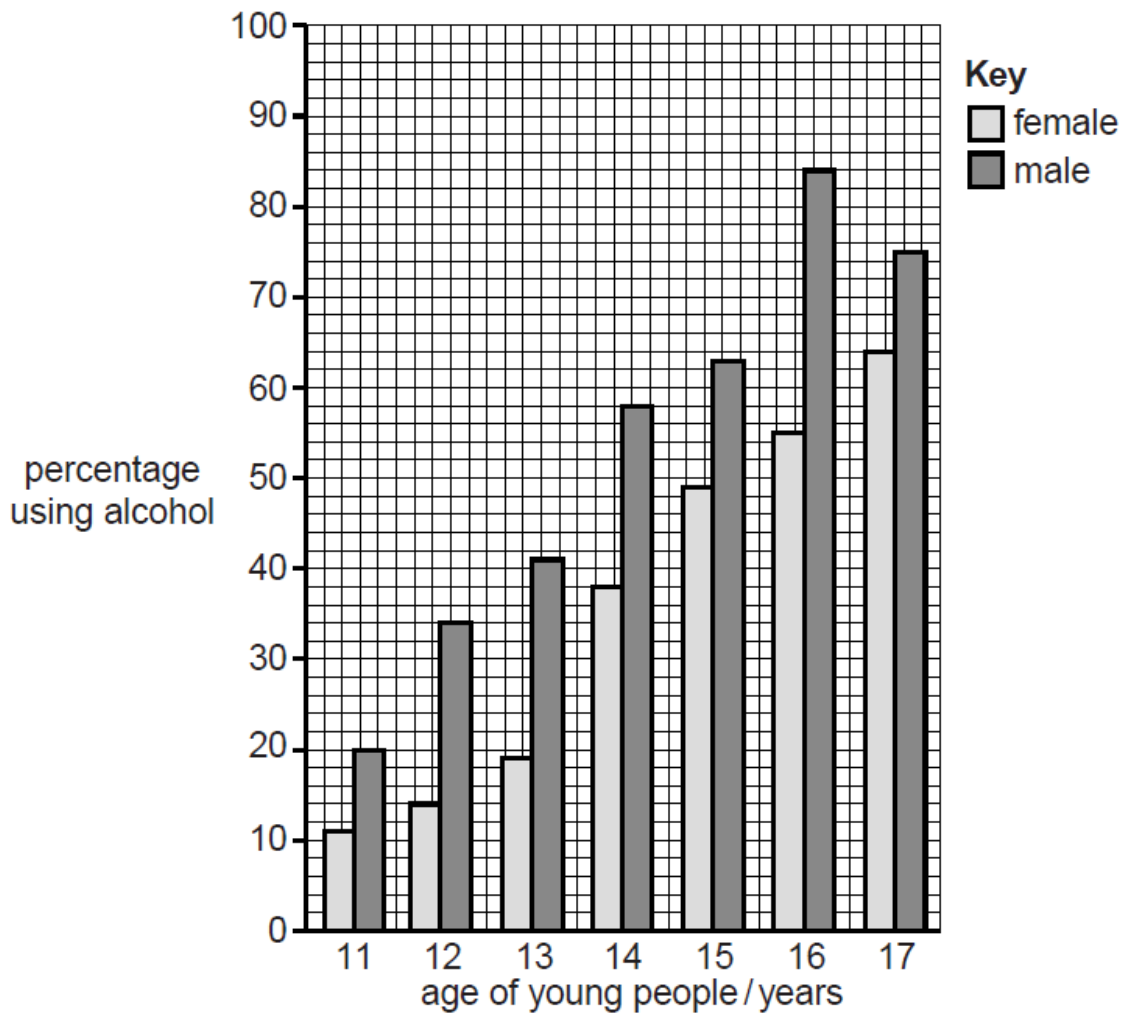


Fig.1

(a) There is a difference in the percentage of males and females who drink alcohol. State the age at which this difference is greatest.

..... [1]

(b) Describe the relationship between age and the percentage of young people using alcohol. [3]

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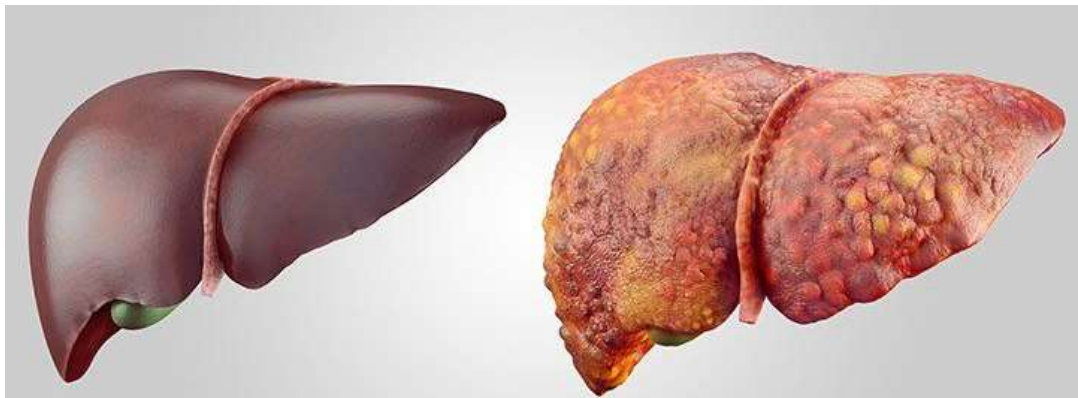
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(c) Use of alcohol can cause damage to the liver and pancreas. Both organs are important in digestion of food.



Healthy liver

Damaged liver

(i) Describe the role of the liver in digestion

[3]

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(ii) Describe the role of the pancreas in digestion

[3]

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(d) Explain why it is not safe to drive a car or motorbike after drinking large amounts of alcohol.

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..... [2]

[Total: 12]

END OF PAPER