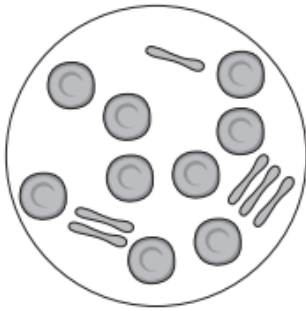


Q1. (2018)

6 Which type of human cell is shown in this diagram?



- A Egg cells
- B Red blood cells
- C Sperm cells
- D White blood cells

Your answer ☐

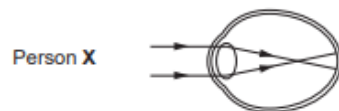
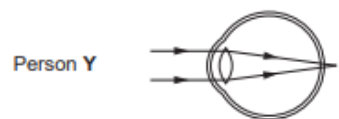
[1]

Q2 (2018) – 22b

A)

(b) Look at the diagrams.

They show how light is focused in people with different eye defects.



(i) Name the eye defect in each person.

Person X

Person Y

[2]

B)

- (ii) Identify the type of corrective lens needed by person X and Y and explain how the lenses work.

.....

.....

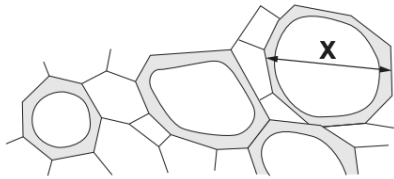
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..... [3]

Q3 (2019) – 16e

16 The diagram shows cells that are important in the process of **transpiration** in plants.



- (e) State why electron microscopy has increased our knowledge of sub-cellular structures.

.....

..... [1]

Q4 (2020)

A)

- 22 **Fig. 22.1** shows the mass of urea in the urine plotted against the BMI (Body Mass Index) for nine boys. BMI is a value often used to see if a person is a healthy mass for their height.

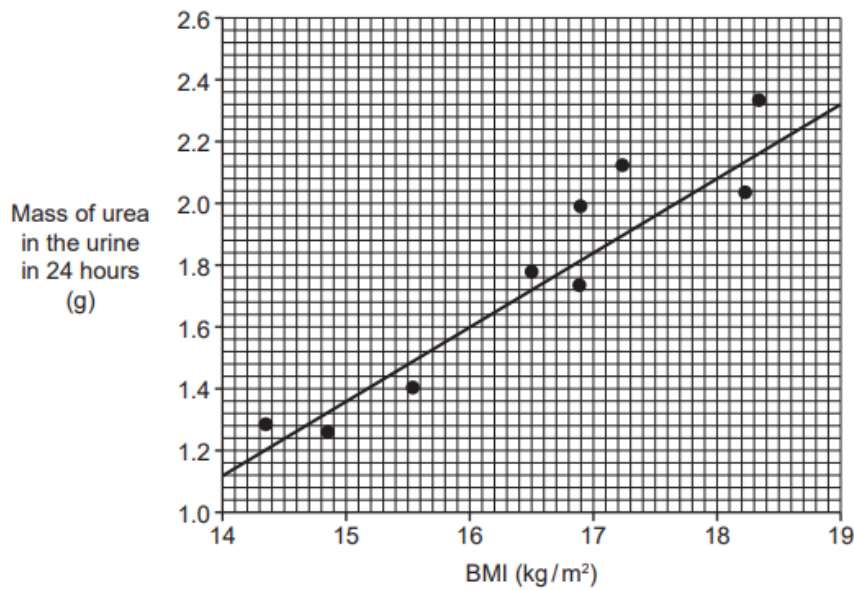


Fig. 22.1

- (a) (i) What does the graph show about the relationship between BMI and the mass of urea in the urine?

..... [1]

B)

- (ii) A boy has a BMI of 16. He produces 1000 cm^3 of urine in 24 hours.

Calculate the concentration of urea in the boy's urine.

Concentration = g/cm^3
[2]

C)

(iii) Fig. 22.2 shows the mass of urea in the urine against the BMI for nine **different** boys.

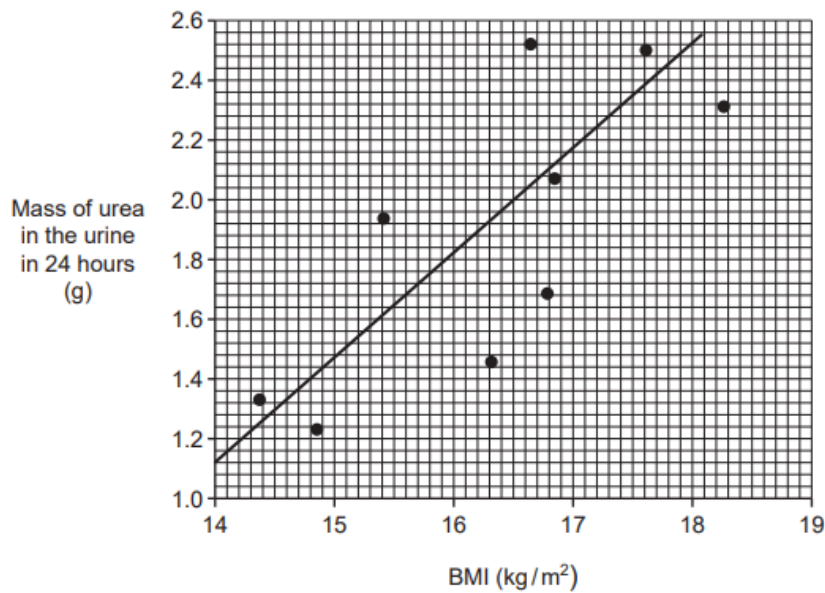


Fig. 22.2

Give **two** differences in the relationship between BMI and the mass of urea in the urine shown in Fig. 22.1 and Fig. 22.2.

1

.....

2

.....

[2]

D)

- (b) The kidney filters the blood. The fluid produced by filtering the blood passes through kidney tubules.

Each kidney tubule contains a number of different parts.

Put a number (1 to 5) in the boxes to show the order of the parts that the liquid passes through.

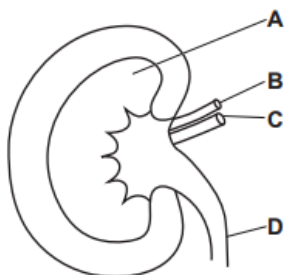
The first one has been done for you.

Bowman's capsule	1
Collecting duct	
Proximal convoluted tubule	
Loop of Henlé	
Second coiled region	

[3]

Q5. (2021)

6 The diagram shows a section through a kidney.

Which part **A**, **B**, **C** or **D**, is the ureter?

Your answer

[1]

Q6. (2021)

17 The circulatory system and gas exchange system are linked.

Two male students investigate how the type of exercise affects breathing rate.

They each record their breathing rates at rest.

Student A then exercises for 5 minutes by jogging on the spot.**Student B** exercises for 5 minutes by doing star jumps.

Both students measure their breathing rate each minute during the 5 minutes of exercise.

A)

(d) The results of their investigation are shown in the table.

Time (min)	Breathing rate (breaths / min)	
	Student A	Student B
0 (rest)	10	11
1	13	16
2	16	25
3	24	29
4	27	33
5	29	37

The increase in breathing rate for **student A** is 19 breaths per minute.

Calculate the percentage difference in breathing rate increase between **student A** and **student B**.

Use the formula:

$$\text{Percentage difference} = \frac{\text{increase in student B} - \text{increase in student A}}{\text{increase in student A}} \times 100$$

Give your answer to **1** decimal place.

Percentage difference = % **[3]**

B)

- (e) Use the results from the investigation to write down **two** conclusions about how exercise affects breathing rate.

1

.....

2

.....

[2]

C)

- (f) (i) Give **two** problems with the method used by the students.

1

.....

2

.....

[2]

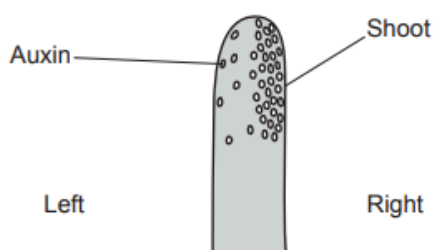
D)

- (ii) Suggest **one** way the method could be improved.

..... **[1]**

Q7. (2022)

12 The diagram below shows the distribution of auxin in a shoot.



What will happen to the shoot?

- A The shoot will bend to the left.
- B The shoot will bend to the right.
- C The shoot will grow upwards and will not bend.
- D The shoot will not grow.

Your answer

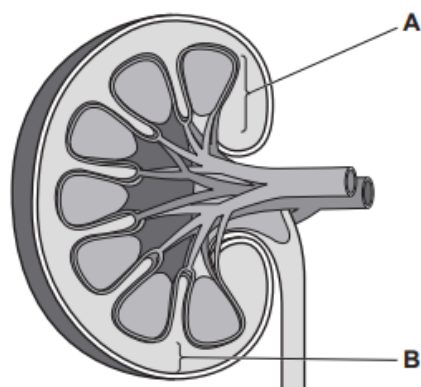
☐

[1]

Q8. (2023)

A)

18 (a) The diagram shows a section through a kidney.



(i) Name the region labelled A.

..... [1]

B)

(ii) Name the region labelled B.

..... [1]

C)

- (iii) Which type of blood vessel brings blood to the kidney?

Put a ring around the correct word.

artery

capillary

vein

[1]

D)

- (b) The table shows the volume of water gained and lost by one person in one day.

Water gained (litres per day)		Water lost (litres per day)	
Food and drink	2.2	From skin and lungs	0.9
Metabolic processes	0.3	Faeces	0.1
		Urine	

- (i) Calculate the volume of urine that will be produced by this person on this day.

Volume of urine = litres [2]

E)

- (ii) The same person runs a marathon race the next day.

Explain how the kidney will maintain the water balance within this person's body during the race.

.....

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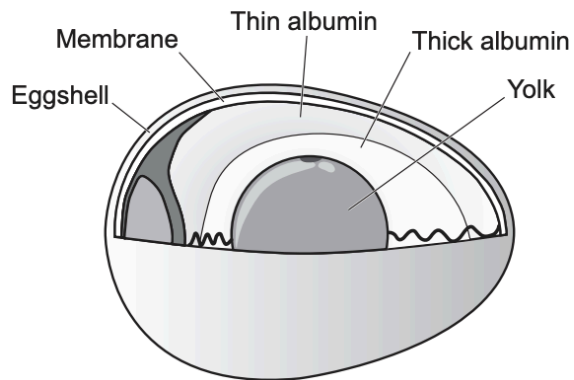
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..... [3]

Q9. (2024)

18 The diagram shows a hen's egg.

A chick can develop inside the egg.



(b) The hen's egg is covered in an eggshell that lets gases through.

Why is it important that the eggshell lets gases through?

.....
..... [1]