Practice Question Set For GCSE
Subject : Biology
Paper-1 Topic: B2 Organisation

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Name of the Student:_____
Max. Marks : 27 Marks **Time : 27 Minutes**

Q1.

Being overweight can affect the health and life expectancy of a person.

(a) Give **one** disease related to being overweight.

_____

(1)

(b) Body mass index (BMI) helps to show if a person has a healthy body mass for their height.

BMI is calculated using the equation:

$$\text{BMI} = \frac{\text{body mass in kg}}{(\text{height in m})^2}$$

A woman has a BMI of 27 and a body mass of 68.1 kg

Calculate the woman's height in metres.

_____

_____

_____

_____

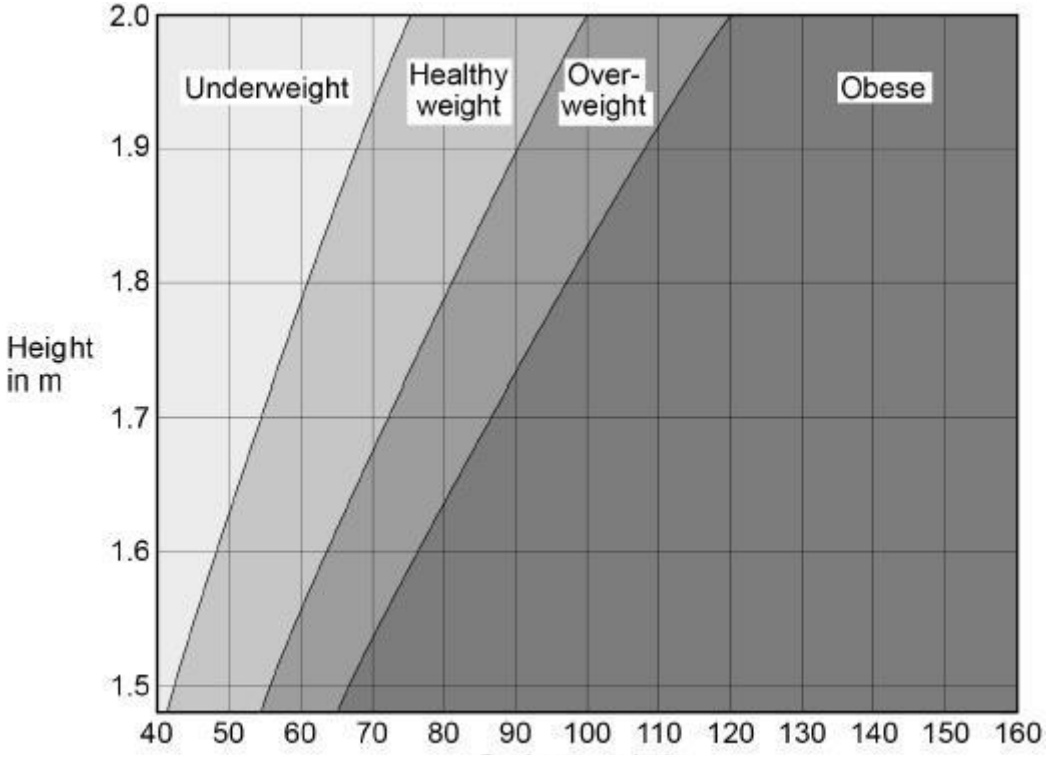
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Height = _____ m

(3)

(c) The graph below shows a height-body mass chart for adults.

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Which weight category describes the woman in part (b)?

Tick (✓) **one** box.

Underweight ☐

Healthy weight ☐

Overweight ☐

Obese ☐

(1)

(d) People are encouraged to control their body mass with diet and exercise.

Describe how the balance between the mass of food eaten and the amount of exercise a person does controls body mass.

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(3)

(e) During long periods of vigorous exercise the body respires anaerobically.

Explain the changes that happen in the body during **and** after vigorous exercise.

(6)

(Total 14 marks)

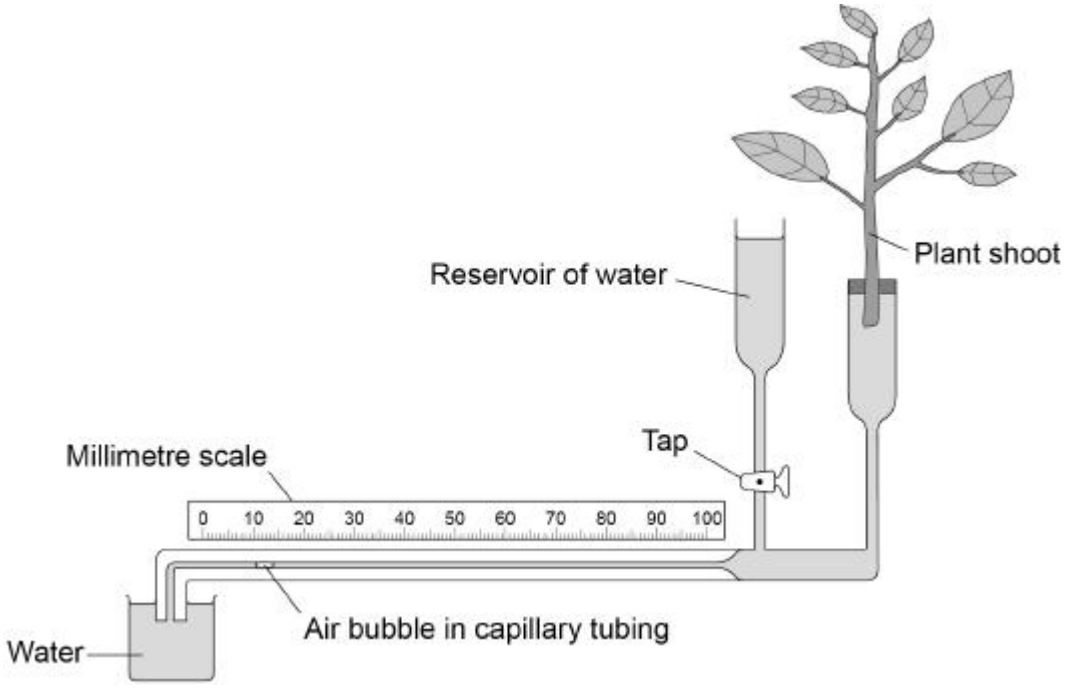
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Q2.

A student used a potometer to investigate the rate of water uptake in a plant shoot.

Figure 1 shows a potometer.

Figure 1



As the shoot takes in water the air bubble moves.

The rate of water uptake is the distance the air bubble moves in a given time.

This is the method used.

1. Place the potometer in moist air at 25 °C
2. Position the air bubble at 0 mm in the capillary tube.
3. Record the position of the air bubble in the capillary tube every minute for 5 minutes.
4. Repeat steps 2 and 3 with the potometer in different conditions.

Table 1 shows the conditions used.

Table 1

Investigation	Conditions
A	Moist air at 25 °C
B	Dry air at 15 °C
C	Dry air at 25 °C

(a) After investigation **A** the air bubble had moved part way along the capillary tube.

Suggest how the student moved the air bubble back to 0 mm for the start of investigation **B**.

_____

_____

(1)

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(b) Capillary tubing is very narrow.

Explain why narrow tubing was used.

_____

_____

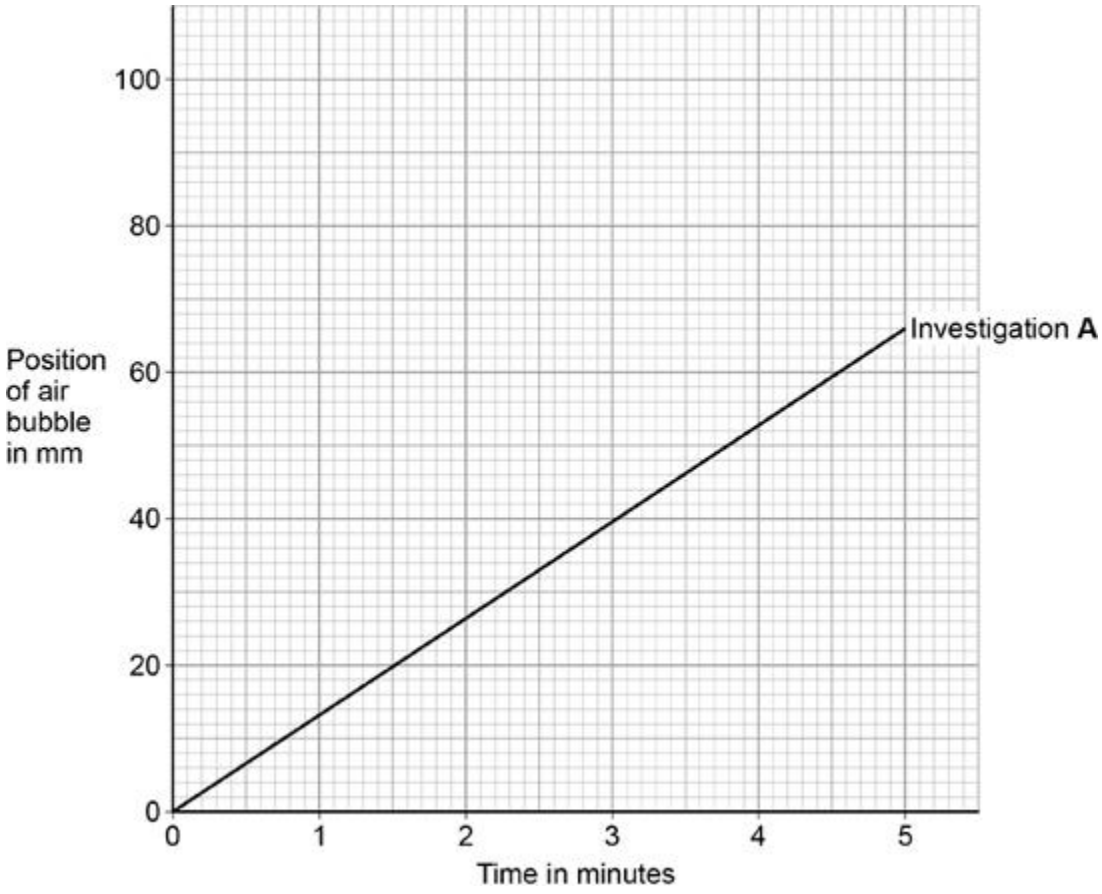
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(2)

Figure 2 shows the results for investigation **A**.

Figure 2



(c) The cross-sectional area of the capillary tube was 0.8 mm^2

Calculate the rate of water uptake for investigation **A** in mm^3/min

_____

_____

_____

_____

_____

Rate = _____ mm^3/min

(3)

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(d) **Table 2** shows the results from investigation **B**.

Table 2

Time in minutes	Position of air bubble in mm
0	0
1	6
2	16
3	22
4	30
5	42

Plot the data from **Table 2** on **Figure 2**.

You should:

- draw a line of best fit
- label the line **B**.

(3)

(e) Investigation **C** was carried out in dry air at 25 °C

Draw a line on **Figure 2** to show the results you would expect for investigation **C**.

Label the line **C**.

(1)

(f) The investigations were carried out in daylight.

The air bubble would **not** move if the investigations were done in the dark.

Explain why.

_____

_____

_____

_____

_____

_____

(3)

(Total 13 marks)

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