Practice Question Set For GCSE
Subject : Biology
Paper-1 Topic: B4 Bioenergetics

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Name of the Student:_____
Max. Marks : 24 Marks **Time : 24 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.

_____

_____

_____

_____

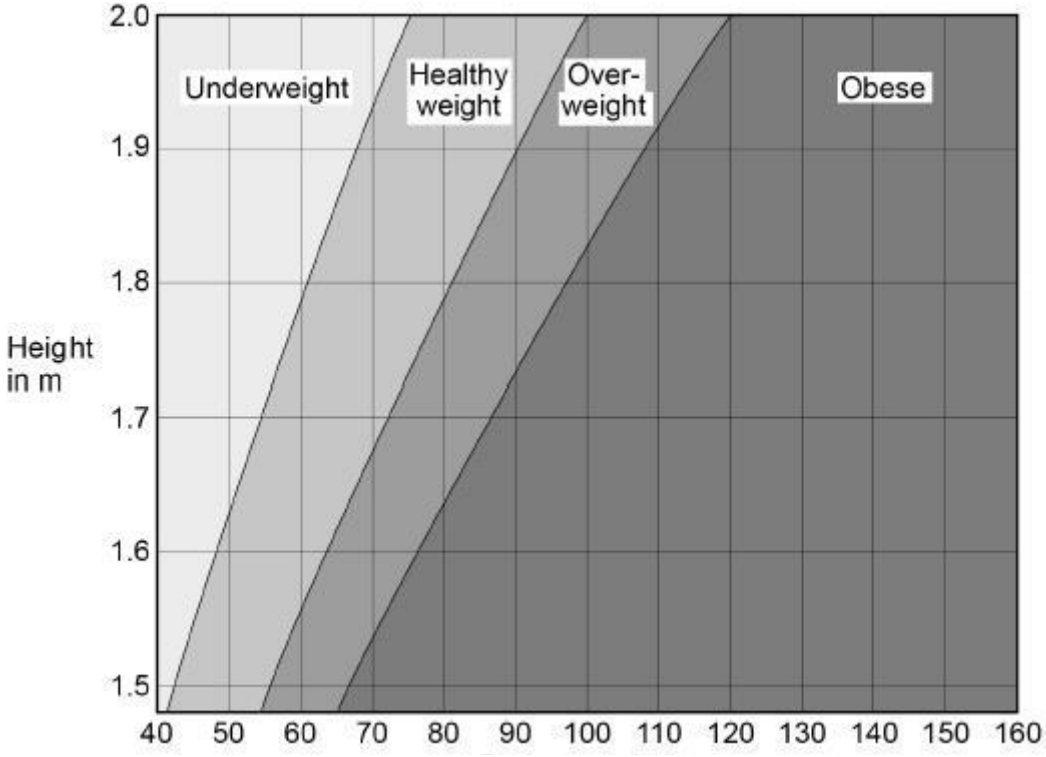
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Height = _____ m

(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.

This question is about photosynthesis and food production.

(a) How can oxygen production be used to show the **rate** of photosynthesis?

_____

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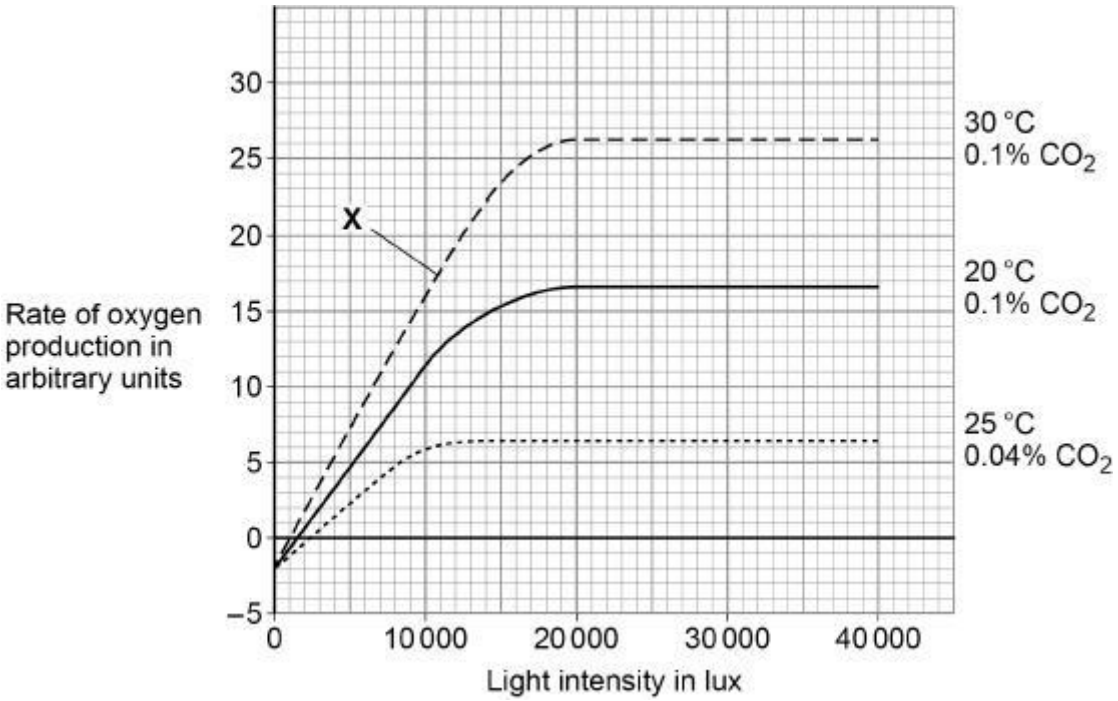
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(1)

Scientists investigated factors affecting the rate of photosynthesis in tomato plants.

The tomato plants were growing in a commercial greenhouse in the UK during winter.

The graph below shows the results.



The percentage of carbon dioxide in the Earth's atmosphere is 0.04%

(b) Name the factor that is limiting the rate of photosynthesis at point **X**.

_____

(1)

Farmers growing tomatoes commercially try to control the rate of photosynthesis and make maximum profit.

A farmer can control the temperature and carbon dioxide concentration in a greenhouse.

(c) What is the **minimum** light intensity a farmer should use to get the maximum rate of photosynthesis shown in above graph?

Light intensity = _____ lux

(1)

(d) The light intensity you gave in part (c) may **not** give the farmer maximum profit.

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Explain why.

_____

_____

_____

_____

_____

_____

(3)

(e) Explain the results when the light intensity was 0 lux.

Use the diagram above.

_____

_____

_____

_____

_____

_____

_____

(4)

(Total 10 marks)

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