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

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Name of the Student:_____
Max. Marks : 23 Marks **Time : 23 Minutes**

Q1.

Amylase is an enzyme that digests starch.

A student investigated the effect of pH on the activity of amylase.

This is the method used.

1. Mix amylase solution and starch suspension in a boiling tube.
2. Put the boiling tube into a water bath at 25 °C.
3. Remove a drop of the mixture every 30 seconds and test it for the presence of starch.
4. Repeat the investigation at different pH values.

The table below shows the students' results.

pH	Time when no starch was detected in minutes
5.0	7.0
5.5	4.5
6.0	3.0
6.5	2.0
7.0	1.5
7.5	1.5
8.0	2.0

(a) The student concluded pH 7.25 was the optimum pH for the amylase enzyme.

This is **not** a valid conclusion.

Suggest **two** reasons why.

1. _____

_____

2. _____

_____

(2)

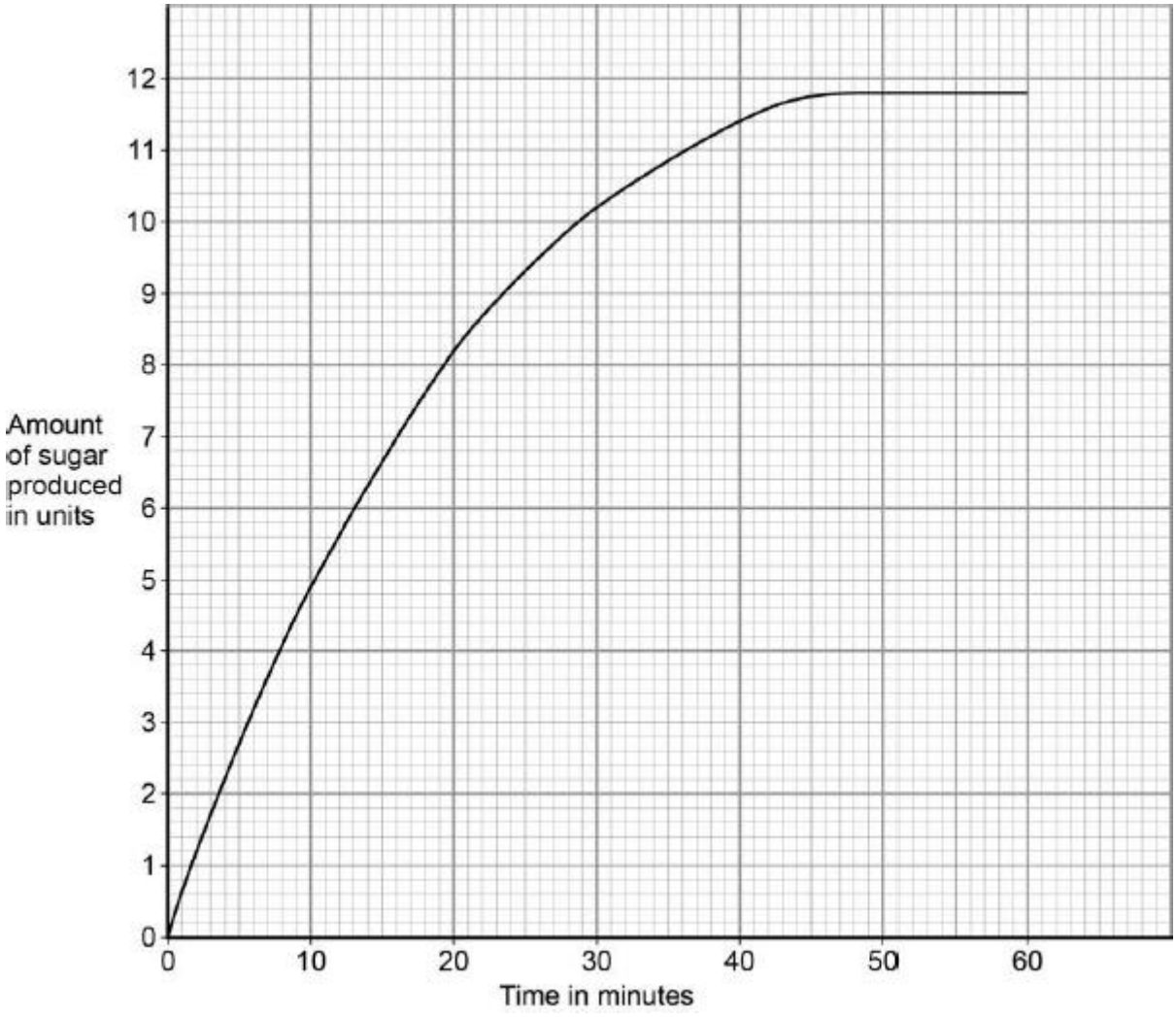
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(b) The student did another investigation.

This is the method used.

1. Put amylase solution and starch suspension into a boiling tube.
2. Make the pH 7.25.
3. Put the boiling tube into a water bath at 25 °C.
4. Measure the amount of sugar produced every 30 seconds.

The results are shown in the figure below.



Calculate the mean rate of sugar produced per minute during the first 5 minutes.

_____

_____

Mean rate = _____ units per minute

(2)

(c) Iodine solution is added to a sample taken from the boiling tube after 10 minutes and 60 minutes.

Suggest what you would see in these samples.

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After 10 minutes _____

_____

.After 60 minutes _____

_____

(2)

(d) The scientist repeated the investigation at 37 °C.

Draw a line on the figure above to show the predicted results.

(2)

(Total 8 marks)

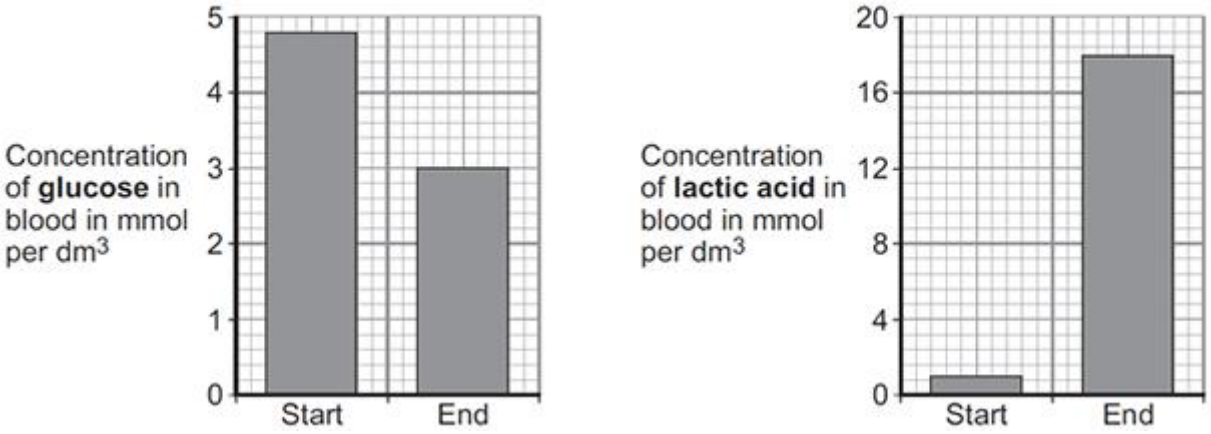
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Q2.

An athlete ran as fast as he could until he was exhausted.

(a) **Figure 1** shows the concentrations of glucose and of lactic acid in the athlete's blood at the start and at the end of the run.

Figure 1



(i) Lactic acid is made during anaerobic respiration.

What does anaerobic mean?

_____

_____

(1)

(ii) Give evidence from **Figure 1** that the athlete respired anaerobically during the run.

_____

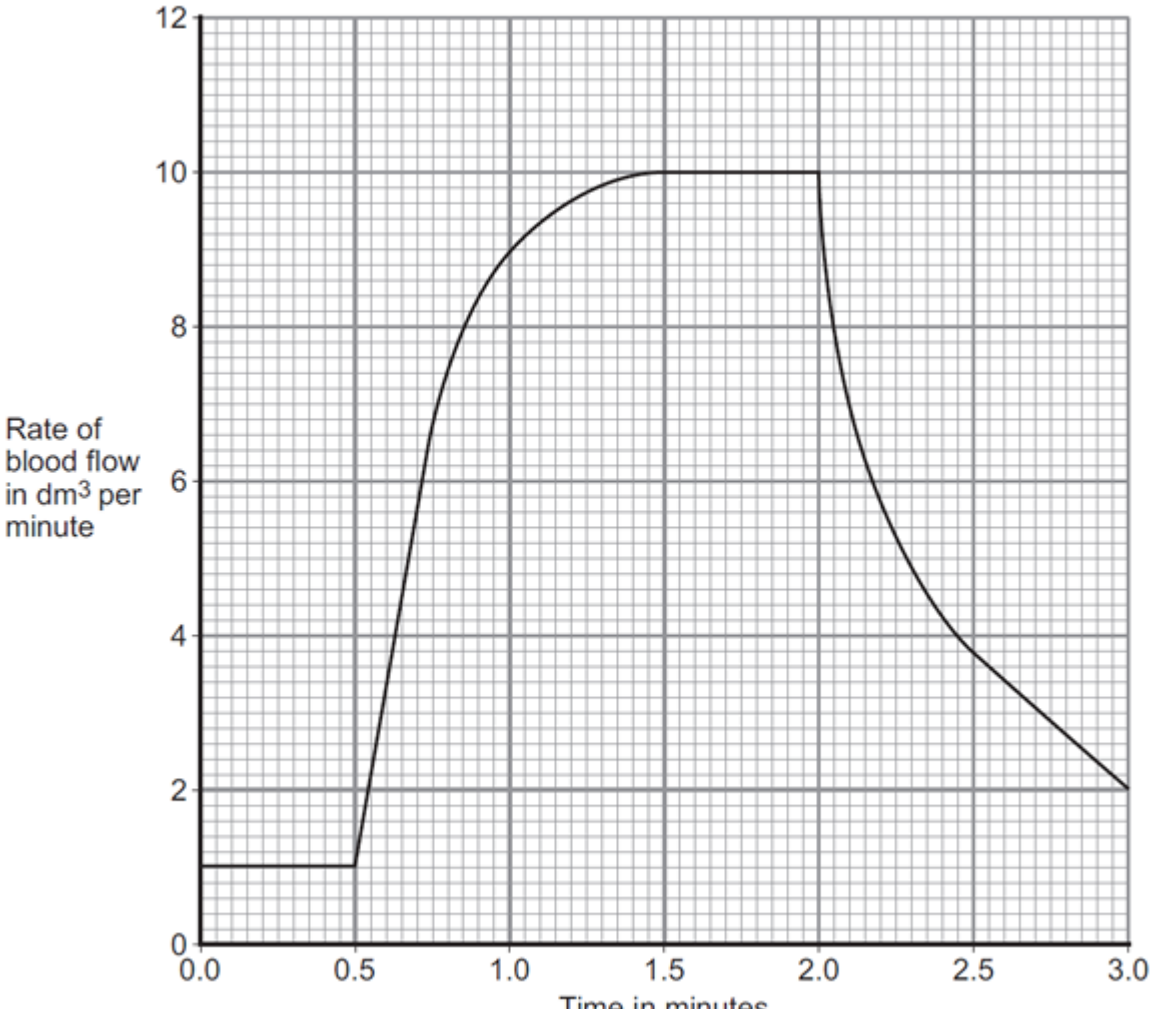
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(1)

(b) **Figure 2** shows the effect of running on the rate of blood flow through the athlete's muscles.

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Figure 2



(i) For how many minutes did the athlete run?

Time = _____ minutes

(1)

(ii) Describe what happens to the rate of blood flow through the athlete's muscles during the run.

Use data from **Figure 2** in your answer.

_____

_____

_____

_____

(2)

(iii) Explain how the change in blood flow to the athlete's muscles helps him to run.

_____

_____

_____

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_____

_____

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_____

(4)

(Total 9 marks)

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Q3.

Carbon dioxide enters a plant through stomata on the leaves.

(a) Name the cells that control the size of the stomata.

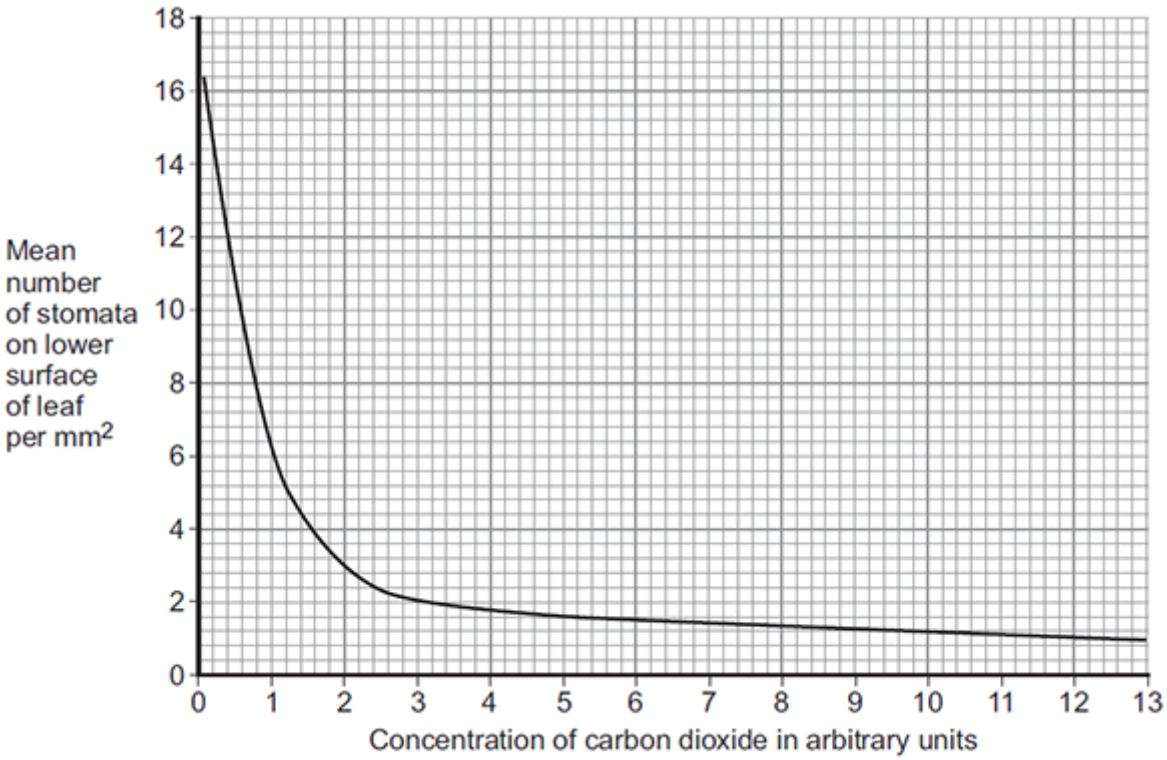
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(1)

(b) Scientists grew tomato plants in air containing different concentrations of carbon dioxide.

The scientists recorded the number of stomata found on the lower surface of the leaves of plants grown at each carbon dioxide concentration.

The graph below shows the results.



(i) Describe the relationship between the mean number of stomata per mm^2 and carbon dioxide concentration.

_____

_____

_____

_____

(2)

(ii) Suggest a reason for the relationship you described in part **(b)(i)**.

_____

_____

(1)

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(c) (i) Suggest **one** disadvantage to a plant of having a large number of stomata per mm^2 on each leaf.

_____

_____

(1)

(ii) Suggest **one** environmental condition where a large number of stomata per mm^2 on each leaf would be a disadvantage.

_____

_____

(1)

(Total 6 marks)

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