Practice Question Set For GCSE
Subject : Biology
Paper-1 Topic: B1 Cell Biology

Merit Minds
www.merit-minds.com
Exam Preparation and Free Resources

Name of the Student:_____
Max. Marks : 22 Marks **Time : 22 Minutes**

Q1.

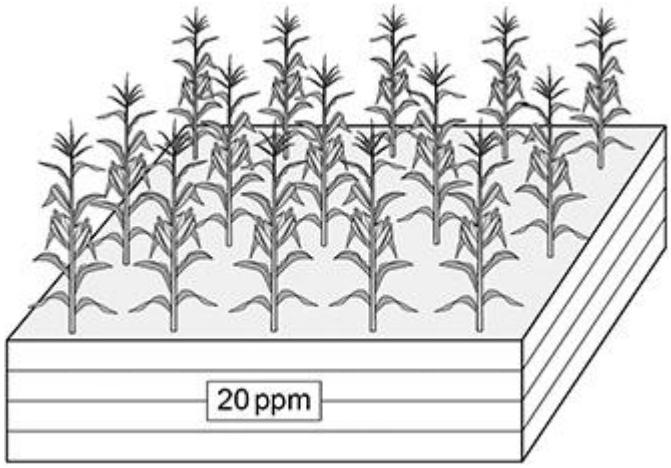
Scientists investigated the effect of soil nitrate ion concentration on the yield of corn.

This is the method used.

1. Corn plants were grown in a large box of soil.
2. The soil nitrate ion concentration in the box was kept at 0 parts per million (ppm).
3. All the corn from each plant in the box was removed and weighed.
4. The mean mass of corn per plant was calculated.
5. Steps 1 to 4 were repeated for boxes containing soil with different concentrations of nitrate ions.

Figure 1 shows the corn plants in the box with a 20 ppm soil nitrate ion concentration.

Figure 1



(a) Give **two** variables the scientists should have controlled in this investigation.

1 _____

_____

2 _____

_____

(2)

The scientists carried out a valid investigation.

Downloaded from www.merit-minds.com

The table below shows the scientists' results.

Soil nitrate ion concentration in ppm	**Mean mass of corn per plant in grams**
0	122
10	190
20	256
30	268
40	240
50	184

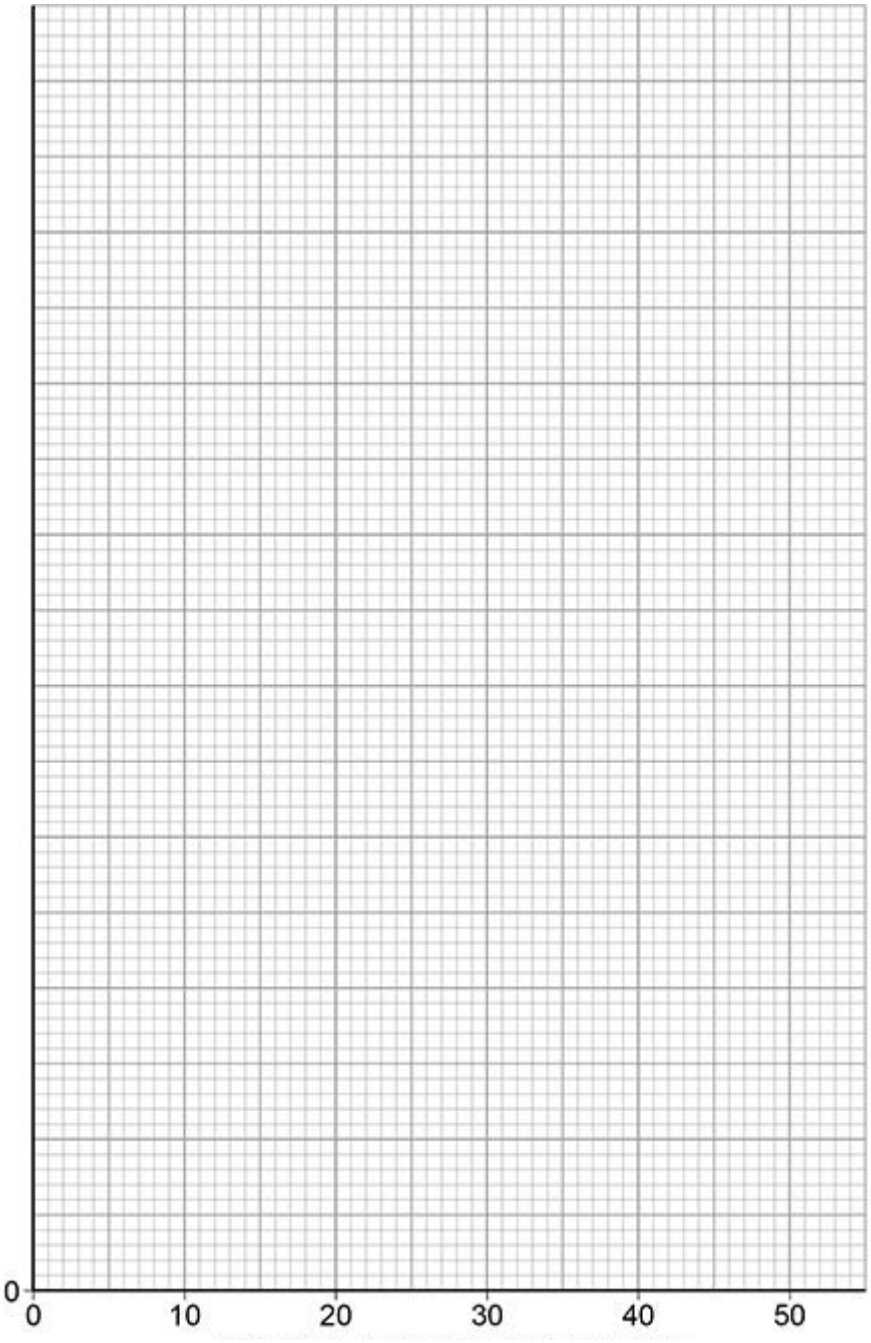
(b) Complete **Figure 2**.

You should:

- label the *y*-axis
- use a suitable scale for the *y*-axis
- plot the data from the table above
- draw a line of best fit.

Figure 2

Downloaded from www.merit-minds.com



(4)

The table above is repeated below.

Soil nitrate ion concentration in ppm	**Mean mass of corn per plant in grams**
0	122
10	190
20	256
30	268
40	240
50	184

Downloaded from www.merit-minds.com

(c) Describe the relationship between soil nitrate ion concentration and the mean mass of corn per plant.

Use data from the table above in your answer.

_____

_____

_____

_____

(2)

(d) Farmers add nitrate fertiliser to fields where they grow corn.

Nitrate fertilisers are expensive.

Evaluate the economic and environmental implications of adding fertiliser to soil in nitrate ion concentrations ranging from 0 to 50 ppm

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

(4)

(Total 12 marks)

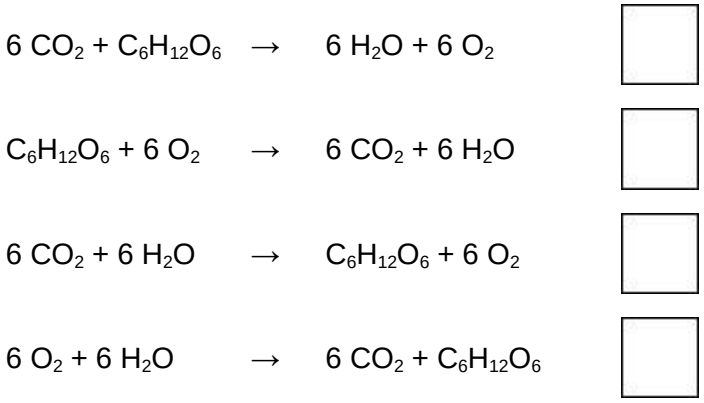
Downloaded from www.merit-minds.com

Q2.

This question is about photosynthesis.

(a) What is the symbol equation for photosynthesis?

Tick (✓) **one** box.



(1)

A student investigated the relationship between temperature and the rate of photosynthesis.

The student measured the volume of gas produced by an aquatic plant in 1 hour.

The student collected the gas in a measuring cylinder.

The table below shows the results.

Temperature in °C	**Volume of gas produced in 1 hour in cm^3**
10	1
15	2
20	4
25	8
30	16
35	16
40	2
45	0

(b) Describe the effect of increasing temperature on the **rate** of photosynthesis.

Use data from the table above.

_____

_____

_____

_____

Downloaded from www.merit-minds.com

_____

_____

(3)

(c) Explain why no gas was produced by the plant at 45 °C.

_____

_____

_____

_____

(2)

(d) How could the student increase the accuracy of the results?

Tick (✓) **one** box.

Repeat the investigation, collecting the gas for 24 hours.	☐
Repeat the investigation, measuring the volume of gas to 0.5 cm^3.	☐
Repeat the investigation using a different aquatic plant.	☐
Repeat the investigation, using temperatures of 5 °C and 50 °C.	☐

(1)

A person grows tomatoes in a greenhouse.

(e) The mean temperature of the greenhouse is 15 °C.

A heater would keep the temperature of the greenhouse at 25 °C.

Suggest **two** reasons **against** using a heater set at 25 °C in the greenhouse.

Do **not** refer to cost in your answer.

1 _____

_____

2 _____

_____

(2)

(f) The person cut a stem from one of the tomato plants.

The cut stem was placed in soil to grow new roots.

Which tissue in the cut stem will differentiate into new root cells?

Downloaded from www.merit-minds.com

Tick (✓) **one** box.

Epidermis ☐

Meristem ☐

Mesophyll ☐

Phloem ☐

(1)

(Total 10 marks)

Downloaded from www.merit-minds.com