Question 24 (7 marks)

A researcher conducted a field experiment to determine the effects of planting density on the yield of cauliflowers.

Three planting densities were used:

Treatment A – 20 cm spacing between plants

Treatment B – 50 cm spacing between plants

Treatment C – 80 cm spacing between plants

The researcher prepared 36 trial plots of equal size. Mean yields (grams/cauliflower) for each of the treatments and the position of each plot are shown. The soil texture trend and gradient of the field are also shown.
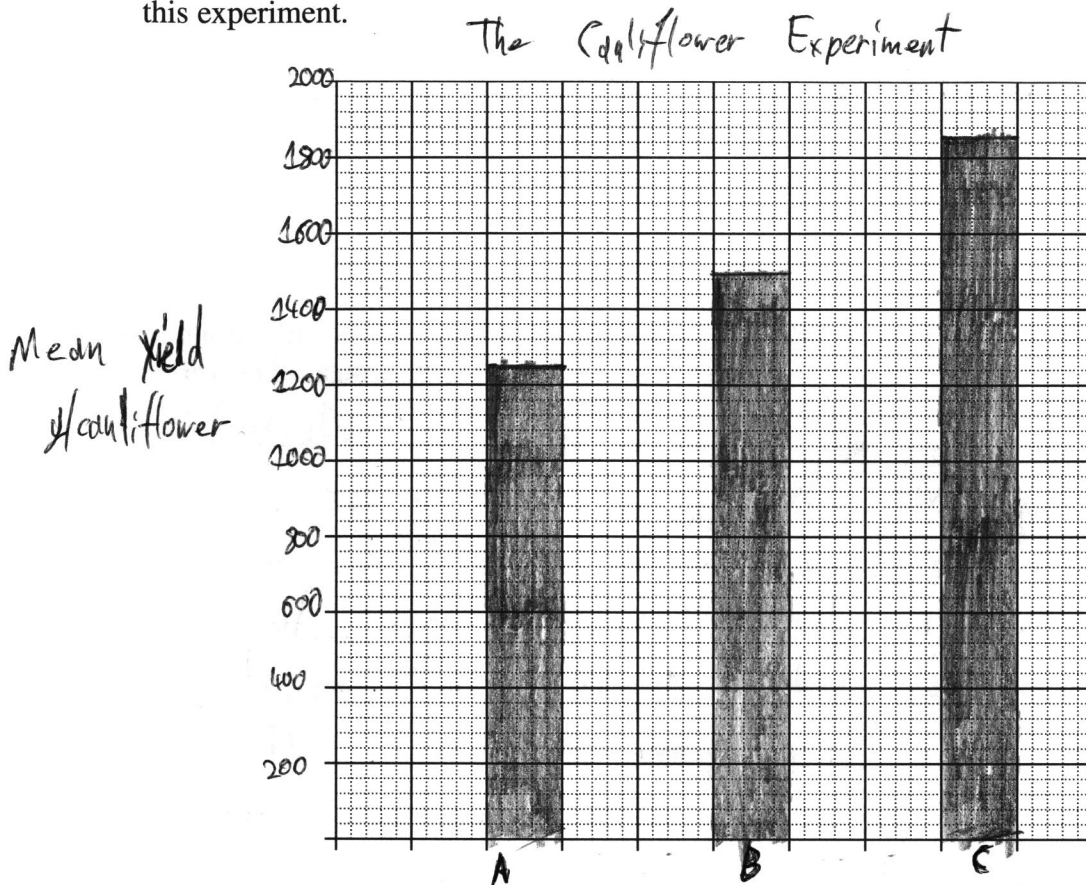

(a)   Which treatment in this experiment is most likely to produce the greatest number of cauliflowers?   **1**

Treatment   B

Question 24 continues on page 15

Question 24 (continued)

(b) Construct a graph that represents the mean yields of the THREE treatments in
this experiment.   **3**

The Cauliflower Experiment

Mean Yield
y/cauliflower

[bar graph with y-axis labelled in intervals from 200 to 2000, x-axis labelled A, B, C showing three bars at approximately 1250, 1500, and 1850]

Treatments

(c) Explain how an alternative experimental design for this experiment may
improve the validity of the results.   **3**

Changing the landscape would change the
results greatly, planting each treatment
on different parts of the hill and soil
textures can give one treatment an
advantage of another

End of Question 24