



CHEMISTRY ONLINE
— **TUITION** —

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BIOLOGY

GENETICS, BIODIVERSITY & CLASSIFICATION

| | |
|-----------------|-------------------------|
| Level & Board | AQA (A-LEVEL) |
| TOPIC: | INVESTIGATING DIVERSITY |
| PAPER TYPE: | SOLUTION - 2 |
| TOTAL QUESTIONS | 5 |
| TOTAL MARKS | 33 |

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Investigating Diversity - 2

1.

(a) 4

(b) 2.686

(c) Use a larger number of samples in order to identify and remove anomalies and then calculate a mean value.

OR

- Take more samples and find mean
- Method for randomized samples described

2.

(a) Kingdom, Phylum, Class, Order, Family;

Luscinia svecica.

(b) Genetic diversity can be summed up by the total number of different alleles found within a species. These differences allow the species to adapt to their changing environments, ensuring their continuation. This process results in species that are better adapted to their environment and is known as natural selection.

OR

Number of different alleles of each gene.

(c)

- Has greater proportion of genes / percentage of genes showing diversity
- Percentage is 35% compared with 28% / proportion is 0.35 compared with 0.28.

3.

(a)

Draw grid over map of area

Select squares/coordinates at random.

(b)

- No emigration/immigration
- No losses to predation
- Marking does not affect survival
- Birth rate and death rate equal
- In this case all belong to one population

(c)

Only glows brightly with UV, so doesn't make insects more visible So doesn't affect/increase predation

OR

Glows brightly with UV making visible So makes it easy to pick out labelled insects

(d)

524 /78

= 6.72 x 1508

= 10130

4.

(a) Species diversity is measured by determining the number of species present in a given area or community and calculating how evenly distributed each species is.

OR

Number of individuals of each species

Total number of individuals / number of species

(b) The control fields allow us to see whether the results are due to the herbicide and not due to another factor.

OR

Shows results are due to the herbicide / are not due to another factor / to compare the effect of using and not using the herbicide / shows the effect of adding the herbicide.

(c) More yields are killed so this means that the crop plants have less competition, however the high concentration of herbicides is toxic to the crop plants.

(d) A higher concentration of herbicide will reduce plant diversity this results in fewer habitats/niches, and fewer food sources & less variety of food.

5.

(a) Firstly, CO_2 combines with ribulose biphosphate (RuBP) to produce two molecules of glycerate-3-phosphate (GP). GP is reduced using reduced NADP and ATP from the light-dependent reaction to produce triose phosphate (TP). TP is converted into useful organic substances (eg. glucose) or into RuBP to renew the cycle.

OR

- Carbon dioxide combines with ribulose bisphosphate
- Produces two glycerate (3-) phosphate
- GP reduced to triose phosphate
- Using reduced NADP
- Using energy from ATP
- Triose phosphate converted to glucose / ribulose bisphosphate / named organic substance

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I am Sorry !!!!!



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- Founder & CEO of Chemistry Online Tuition Ltd.
- Completed Medicine (M.B.B.S) in 2007
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