CHEMISTRY ONLINE TUITION

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BIOLOGY

GENETICS, BIODIVERSITY & CLASSIFICATION

Level & Board	AQA (A-LEVEL)
TOPIC:	INVESTIGATING DIVERSITY
PAPER TYPE:	SOLUTION - 1
TOTAL QUESTIONS	5
TOTAL MARKS	24

Investigating Diversity - 1

1.

(a)

- Comparing measurable features
- Comparison of amino acid sequences in proteins

(b)

(4 / 11) x 100

= 36%

(c) B, A, C

(d) Student's t-test

Comparing mean of data sets/histograms

OR

Data are normally distributed

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) PKNJ.

(b) Lutra lutra.

(c)

Reduced number of different alleles

Few survivors

4.

(a) Populations can still have low levels of genetic diversity if they have never been hunted. This can happen because the population is very small and isolated from other populations. Small populations may inbreed causing a low genetic diversity.

OR

- Population might have been very small / genetic bottleneck
- Population might have started with small number of individuals / by one pregnant female / founder effect
- Inbreeding

5.

(a) Species richness measures only number of different species / does not measure number of individuals.

(b)

- Index for canopy is 3.73
- Index for understorey is 3.30
- Index in canopy is 1.13 times bigger

(c)

For Zaretis itys, difference in distribution is probably due to chance / probability of being due to chance is more than 5%;

For all species other than Zaretis itys, difference in distribution is (highly) unlikely to be due to chance;

Because $P < 0.001$ which is highly significant / is much lower than 5%.

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M.B.B.S / MS. CHEMISTRY

- Founder & CEO of Chemistry Online Tuition Ltd.

- Completed Medicine (M.B.B.S) in 2007

- Tutoring students in UK and worldwide since 2008

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