

Name of the Student: _____

Max. Marks : 22 Marks

Time : 22 Minutes

Mark Schemes

Q1.

- (a) (i) 1. Groups within groups;
*Accept: idea of larger groups at the top **or** smaller groups at the bottom*
2. No overlap (between groups); 2
- (ii) 3; 1
- (iii) Chordata;
Accept: if phonetically correct eg 'Cordata' 1
- (b) (i) 1. (To provide) genetic variation;
Genetic variation must be directly stated and not implied
2. (Allows) different combinations of maternal and paternal chromosomes / alleles;
Accept: any allele of one gene can combine with any allele of another gene 2
- (ii) 1. (Zedonk has) 47 / odd / uneven number of chromosomes;
Accept: diploid number would be odd
Reject: if wrong number of chromosomes is given
2. Chromosomes cannot pair / are not homologous / chromosome number cannot be halved / meiosis cannot occur / sex cells / haploid cells are not produced;
Accept: cannot have half a chromosome
*Q Reject: meiosis cannot occur **in** sex cells* 2

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Q2.

- (a) 1. Number of (individuals of) each species;
Accept: 'population' for 'number'
2. Total number of individuals / number of species;
Accept: 'species richness'
MP2 allows for other types of diversity index
- 2
- (b) (i) (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;
Neutral: allows a comparison
Neutral: ensures results are due to the independent variable
Reject: 'insecticide'
Accept: 'pesticide'
- 1
- (ii) 1. (More) weeds killed **so** more crops / plants survive / higher yield / less competition;
2. High concentrations (of herbicide) harm / damage / kill / are toxic to crops / plants;
Accept: 'pesticide'
Neutral: 'insecticide'
Accept: use of figures (eg 400+)
- 2
- (iii) 1. Reduced plant diversity / fewer plant species / fewer varieties of plant;
Accept: 'weed' for 'plant'
Neutral: fewer plants
Accept: only one crop species remains
2. Fewer habitats / niches;
Q *Neutral: fewer homes / shelters*
3. Fewer food sources / varieties of food;
Neutral: less food
- 3

[8]

Q3.

1. Carbon dioxide combines with ribulose biphosphate / RuBP;
2. Produces two glycerate (3-)phosphate / GP;
Accept: any answer which indicates that 2 x as much GP produced from one RuBP.
3. GP reduced to triose phosphate / TP;
Must have idea of reduction. This may be conveyed by stating m.p. 4.
4. Using reduced NADP;
Reject: Any reference to reduced NAD for m.p.4 but allow reference to reduction for m.p. 3.
5. Using energy from ATP;
Must be in context of GP to TP.
6. Triose phosphate converted to glucose / hexose / RuBP / ribulose biphosphate / named organic substance;

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