Name of the Student:_____
Max. Marks : 24 Marks **Time : 24 Minutes**

Mark Schemes

Q1.

(a) dry conditions - stomata partially closed;
due to less turgor in guard cells;
OR
watered conditions - stomata more open;
due to greater turgor in guard cells;

2

(b) (i) *EITHER*
temperature *[Allow heat]* - higher causes more water evaporation / diffusion *[not just transpiration]*
OR
light - causes stomatal opening
OR
soil texture - determines availability of water
OR
humidity - reduces evaporation / reduces gradient / wind causes more (water) evaporation;

1

(ii) high CO_2 gives less variation AND watering gives less variation;
OR
insignificant difference in variability as small differences in SD;
reject 'no difference'

1

[4]

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Q2.

(a) (variation in) temperature will affect the solubility of oxygen / rate of respiration / use of oxygen by cells / diffusion / gas exchange;
to gain credit point made must concern oxygen

1

(b) (i) there is no difference between the partial pressure of oxygen in the two groups / the partial pressure of oxygen is the same in each group;

1

(ii) results may have been due to chance and statistical test allows us to determine the probability of this / of the difference between results being significant;
enables acceptance or rejection of null hypothesis;
The key points here are chance and probability used in the correct context.

2

(c) **A**;
because partial pressure of oxygen only reduced when zinc in water / in **Y** / because when injected zinc / in **X** has no effect on partial pressure of oxygen in blood;

2

(d) less oxygen transport to cells / in fish / in blood;
anaerobic respiration;
lactic acid produced / less carbon dioxide removed (from gills);
more H^+;

3 max

(e) (i) copper;
calculation based on comparing concentration in woodlice with that in leaves;
accept any suitable method here, giving marks for the method and explanation. For example, calculating ratio of concentration in woodlice to concentration in leaves.

2

(ii) not absorbed from gut / passes out in faeces / egested / urine / excreted;

1

(iii) woodlice eat large amount of leaves;
copper stored / accumulates in body;

2

(f) (i) mutation;

1

(ii) (as a component of) nucleic acids / DNA / RNA / nucleotides;
phospholipids;
ATP / ADP;

2 max

(iii) arsenic-tolerant plants would not be able to take up phosphates / take up a little phosphate;
since likely to involve same mechanism / same carrier / protein;
(process of) growth would be poorer than non-tolerant plants;

3

[20]

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