Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Mark Schemes

Q1.

(a) **Two** marks for **three** correct structures,

one mark for **two** correct structures;;

P = capsule/lamella(e)
Accept connective tissue

Q = Axon (membrane)
Accept (sensory) neurone
Accept nerve cell
Ignore nerve

R = Schwann cell(s)
OR
R = Myelin (sheath)

2

(b) 1.27% (second box) ticked;

1

(c) 1. The student started to move/close her hand before the ruler was released;
Accept any descriptions of a pre-emptive strike

2. The ruler did not fall vertically/was not placed vertically;

3. The ruler stuck to her skin;

4. (Student **B**) held the ruler too high/higher;

*Ignore answers related to student **A** having their eyes open*
*Ignore student **B** misread the ruler*

1 max

(d) Correct answer of 12.9/13 (m s^{-1}) = **2 marks**;;

Use of reaction time of 136 (ms)/0.136 (s) in answer = **1 mark**

OR

$14.58\dot{3}$ (answer including Trial 3) = **1 mark**

OR

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1.29 = **1 mark**

*For **2 marks** accept any correct rounding of 12.8676471*

2

(e) 1. Synaptic transmission
OR
Transmission at neuromuscular junction;

Accept (involves) synapses

2. Time for muscle contraction;

3. Time taken for (stretch-mediated) sodium ion channels to open (in the Pacinian corpuscle);

4. Student may have been distracted/not concentrating;

5. Time taken for coordination/comprehension (by the brain);

Ignore answers relating to the estimate of the length of the nerve pathway involved

For 1 mark, accept correct reference to student conditions/medication eg tiredness, antidepressants

3 max

[9]

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Q2.

(a) 1. Tip produces IAA;

Accept source/release for produces but ignore contains/stores IAA.

2. IAA diffuses (into shoot);

Accept auxin for IAA.

Accept IAA diffuses down.

3. (More) elongation of cells on one side (than other);

Accept (more) elongation of cells on left side.

Reject any reference to shaded/dark side or away from light.

3

(b) 1. Size of shoot/tip;

2. Number of shoot tips;

3. Size/type of agar (block);

Accept 'amount of agar'.

4. (Shoots) at same stage of growth/development;

Accept (Shoots/plants) are same age.

5. Time (period) tips kept on agar

OR

Time (period) agar/block kept on (cut shoot)

OR

Time (period shoots) kept in dark;

6. Temperature;

Mark points 1 to 6 = max 3.

Ignore pH, species, carbon dioxide, humidity, nutrients, water and light.

7. (Repeat several times and) calculate a mean;

8. Compare/read degree of curvature (on calibration curve) to determine (IAA) concentration

OR

Higher the degree of curvature the higher the IAA concentration;

5 max

(c) 1. (IAA) is not broken down by light

OR

(IAA) is produced in the dark **OR**

Light/dark does not affect (IAA) production;

2. (IAA) moves away from light

OR

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(IAA) moves to shaded side;

IAA accumulates on shaded side is not enough on its own, idea of movement is required.

2

[10]

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