

Plant Hormone MS

QUESTION 1

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	any two from: light / sunlight water nutrients / ions / salts / minerals space	ignore Sun ignore food	2
b)i)	herbicides		1
b)ii)	pesticides		1
c)	any two from: habitat destroyed numbers / species / biodiversity reduced less food / fewer breeding sites	mark as a whole allow animals die / move away allow fewer homes / nowhere to live ignore would keep animals out	2
Total marks			5

QUESTION 2

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	diagram to show root growing down diagram to show shoot growing up	allow single lines or not attached or open ends for both marks all branches must go down all branches must go up	1 1
b)	gravity		1
c)	Auxin		1
d)i)	rooting / cuttings	accept other suggestions, eg fruit set / ripening do not accept weed killers	1
d)ii)	any three from: light water / moisture nutrients / ions / minerals space / area	ignore sun / energy accept one named mineral ignore nutrition / food ignore soil / land / territory / volume ignore reference to gases	3
Total marks			8

QUESTION 3

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	any two control variables for 1 mark each: age / size of shoots species or type of plant / seeds light intensity (other) named condition eg temperature / water	accept amount of light / colour of light	2
b)	ref to auxin / hormone unequal (lateral) distribution more hormone on dark side causes growth on dark side	ignore reference to phototropism	1 1 1 1
c)i)	(detection) in tip / top / end		1
c)ii)	(response) behind tip		1
Total marks			8

QUESTION 4

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	in the direction of the force of gravity		1
a)ii)	against the force of gravity		1
b)i)	diagram completed to show stem bending / leaning towards the window	the bend / lean can be at / from any point above pot level ignore any leaves	1
b)ii)	more light (for leaves) more photosynthesis / biomass / glucose	ignore heat ref to 'more' needed once only, eg 'more light for photosynthesis' = 2 marks if no other marks given allow 1 mark for 'to get light for photosynthesis'	1 1
Total marks			5

QUESTION 5

QUESTION	ANSWER	EXTRA INFORMATION	MARKS								
a)i)	any one from: <ul style="list-style-type: none">• (same) (type of) weed killer• (same) volume / 5dm³ of solution used (on each area)• effect on daisies (not other weeds / plants)• (same) area / 10m²• (same) time or (effect after) two weeks	ignore references to same lawn / weather / soil, which are not given in the question. allow amount of solution used do not allow amount / volume / concentration of weed killer do not allow number of daisy plants	1								
a)ii)	more (daisies) growing after use of weed killer or after two weeks	allow it does not fit pattern (of other results)	1								
a)iii)	any one from: <ul style="list-style-type: none">• as a control• to compare (to the other areas)• to check other factor(s) are not affecting the results / daisies	ignore to see if it / water has an effect do not allow as a control variable	1								
a)iv)	80 (arbitrary units of weed killer) also killed all the daisies	allow ref to possible experimental design flaws such as 'only tested once' or 'not repeated' or 'different number of daisies in each area at first' allow idea that other weed species may not respond in the same way as daisies allow idea that 100 (units) may also kill wanted species / grass	1								
b)	<table border="1"><thead><tr><th>0 marks</th><th>Level 1 (1–2 marks)</th><th>Level 2 (3–4 marks)</th><th>Level 3 (5–6 marks)</th></tr></thead><tbody><tr><td>No relevant content.</td><td>Reference to at least one environmental factor plants respond to or at least one response or a named hormone</td><td>Reference to at least one environmental factor plants respond to and at least one associated response or reference to a named hormone and at least one associated response</td><td>Reference to at least one environmental factor plants respond to and at least one associated response and reference to a named hormone</td></tr></tbody></table>	0 marks	Level 1 (1–2 marks)	Level 2 (3–4 marks)	Level 3 (5–6 marks)	No relevant content.	Reference to at least one environmental factor plants respond to or at least one response or a named hormone	Reference to at least one environmental factor plants respond to and at least one associated response or reference to a named hormone and at least one associated response	Reference to at least one environmental factor plants respond to and at least one associated response and reference to a named hormone		6
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	examples of biology points made in the response: environmental factors <ul style="list-style-type: none">•light•(direction of the force of) gravity	allow phototropism allow gravi/geotropism allow hydrotropism									

	<ul style="list-style-type: none"> •moisture / water <p>effects on direction of growth</p> <ul style="list-style-type: none"> •shoots grow upwards •shoots grow towards light •shoots grow against (the force of) gravity •roots grow downwards •roots grow towards moisture •roots grow towards (the force of) gravity <p>hormone</p> <ul style="list-style-type: none"> •reference to auxin •unequal distribution of hormone causes unequal growth (rates) 	<p>allow reference to 'positive' and 'negative' in terms of tropisms as indicating direction of growth</p> <p>allow other named hormone(s)</p> <p>allow higher concentration of hormone causes faster growth in shoots</p> <p>allow higher concentration of hormone causes slower growth in roots</p>	
Total marks			10