

Question	Answer	Marks	AO Element	Notes	Guidance
1	(enters through) stoma(ta) / between guard cells ; (moves through) interconnecting / intercellular / <u>air</u> , spaces ;	2			
2	<u>diffusion</u> ;	1			
3	<i>any four from :</i> (photosynthesis involves) enzymes / AW ; increase in temperature increases rate (of photosynthesis) / ora ; increases <u>kinetic energy</u> of molecules ; increases effective collisions between enzyme and substrate molecules / ora ; reaction will have an optimum temperature ; high temperature denatures enzymes ; increases rate of diffusion ; increased uptake of carbon dioxide molecules into leaf ;	4			

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4	<p><i>any four from:</i>  obtain (named) resources from,  larger / deeper, area ;  so that they have enough roots  to survive (the reintroduction  process) ;  ref. to large(r) surface area ;  more root hair (cells) ;  for (more) water <u>and</u> (named)  minerals / ions / salts, uptake ;  anchorage / described ;  so that not pulled out (when  animals grazing / wind etc) ;  reduced soil erosion ;  AVP ; e.g. named use of, water  / mineral ion</p>	4			
5	<p><b>Q</b> phloem ;  <b>S</b> xylem ;</p>	2			
6	<p><i>any two from:</i>  ref. to capillaries ;    (capillaries are) one cell thick /  thin / AW ;    <i>idea of</i> fenestrations / pores ;    network (of capillaries) / tangled  / knotted / tightly packed tubes  ;    description of shape e.g. round  / ball-shaped ;</p>	2			

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7	<p><i>any two from;</i>  <u>deamination</u> / removal of nitrogen containing part (of amino acids) ;                      to form urea ;                      (part of) amino acid converted to ammonia ;                      ammonia converted to urea ;</p>	2			
8	<p><b>A</b> - medulla ;  <b>B</b> - cortex ;  <b>C</b> - renal vein ;</p>	3			
9	<p>chemical / substance, produced by a gland ;                      transported in the blood (plasma) ;                      alters the activity of one of more specific target, organs / tissues / cells ;</p>	2			
10	auxin ;	1			

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11	<p>nervous system, responds quickly / immediately ; <b>ora</b></p> <p><i>idea that</i> (nerve) impulses travel to, (specific) muscles / (adrenal) glands / effector(s) ;</p> <p>effects of endocrine system are long lasting ; <b>ora</b></p> <p>hormones / adrenaline, travels throughout the body / allows multiple (target) organs to respond (to same signal) ;</p> <p><i>idea that</i> less energy required than to have nerves going to every, cell / tissue ;</p> <p>stimulate both voluntary and involuntary responses (simultaneously) ;</p> <p>more effective / enhanced, response (than using one system alone) ;</p>	4			

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12	<p>detection by, sensory neurone / receptor (in skin) ;</p> <p>brain / hypothalamus, as control centre / AW ;</p> <p><u>impulses</u> in, motor / effector, neurones ;</p> <p><u>muscles</u> in, shunt vessels contract / arterioles relax ;</p> <p>so shunt vessels, constrict / close ;</p> <p>arterioles dilate / <u>vasodilation</u> ;</p> <p>increased / more, blood flow, into capillaries / near surface (of skin) ;</p>	3		A brain / hypothalamus, detecting temperature	
13	<p><i>any three from:</i></p> <p>stimulus / light (detected by) retina / rod / cone / receptor ;</p> <p><i>reference to</i> (electrical) <u>impulse</u> / <u>electrical signal</u> ;</p> <p>sensory neurone → relay / connector, neurone → motor neurone ;</p> <p><i>reference to</i> synapses between neurones ;</p> <p>effector / (circular) muscles (in iris), contract / <u>respond</u> ;</p>	3			

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14	<p><i>any four from:</i></p> <p>correct ref. to neurotransmitter ;</p> <p>released from vesicles (into synapse / synaptic gap) ;</p> <p>ref. to movement (of neurotransmitter) by diffusion ;</p> <p>(neurotransmitter) binds with receptor (molecules on neurone on the other side of synapse) ;</p> <p>causing impulse to continue / AW ;</p>	4			
15	ovule ;	1			
16	<p><i>any two from:</i></p> <p>(covered in) spikes / sticky ;</p> <p>(pollen) sticks to, insect / animal (bodies / legs / AW) ;</p> <p>large(r) size (in comparison with wind) ;</p> <p>AVP ;</p>	2			
[Total: 40]					