Question	Answer	Marks	Guidance
1 a	pituitary (gland) (1) growth (hormone) (1) maintains the wall/lining of the uterus/womb (1) stimulates an egg to develop (1)	4	 **allow** (H)GH **not** repairs/thickens/builds wall/lining **allow** prevents corpus luteum breaking down **allow** inhibits FSH / LH **allow** inhibits egg production **allow** stimulates the growth of a follicle **allow** stimulates egg production **allow** stimulates oestrogen production **ignore** ovulation
b	**any two from:** too much/more urine is released (1) urine is **more** dilute (1) blood is too/more concentrated (1) increased thirst (1) less water **reabsorbed** (into blood) (1)	2	must be comparative **allow** urinate more often **allow** urine has a higher concentration of water **allow** blood has a lower concentration of water **allow** become dehydrated / need to drink more water **ignore** references to permeability of tubules (as in question)
	Total	**6**	

Question			Answer	Marks	Guidance
2	(a)		Only seedlings 1 and 2 are showing positive geotropism ☐ Only seedling 1 is showing positive phototropism. ✓ (1) All the seedlings are responding to gravity ✓ (1) Only seedling 3 is showing negative phototropism ☐ None of the seedlings are responding to light ☐ All of the seedlings are showing negative phototropism ☐	2	more than two ticks: deduct one mark for each incorrect answer
	(b)		**any three from:** (**A** - seedling 1 grows but seedling 2 does not:) because hormone is **made** in the tip (of seedling 1) (1) so no hormone (made) in seedling 2 (1) (**B** - seedling 1 bends but seedling 2 does not:) (more) hormone on dark side of seedling 1 / hormone moves to dark side (1) so hormone causes (more) **cell elongation** (on dark side) (1) (hormone is) auxin (1)	3	**to get maximum 3 marks they must have two linked ideas, i.e. at least two marks from either A or B, plus one other mark:** e.g. no hormone is made in 2 because hormone is made in the tip and the hormone causes cell elongation (3) **but** hormone made in the tip is auxin and it causes cell elongation (2) **allow** hormone destroyed on light side **ignore** just more growth on dark side
			Total	**5**	

Question	Answer	Marks	Guidance
3 a	(auxin) made in tip **and** because when tip is covered / missing then no growth towards the **light** / bending towards the **light** (1)	1	 **allow ora** eg no tip exposed to light then no curvature must be sure response is **to light** **allow** there is no positive phototropism when tip is covered
b	no response with mica as mica prevents diffusion / response with gelatin as gelatin allows diffusion (1)	1	**allow** by diffusion as when diffusion is prevented it doesn't grow (towards the light)
c	idea of more auxin on shaded / right side and (more cell) elongation on shaded / right side (1)	1	**ora** **allow** auxin moves to shaded / right side because elongation greatest on shaded side **ignore** auxin destroyed by light response must indicate an unequal distribution of auxin in response to light
	Total	**3**	

Question	Answer	Marks	Guidance
4 a	adrenaline (1)	1	
b i	0.08 (1)	1	
ii	contraction of ventricles is longer / 0.24 v 0.08 (1) need to pump blood further / to the body (1)	2	**allow** atria only need to pump the blood into the ventricles / do not need to pump as far (1) **ignore** to generate a higher pressure
	Total	**4**	