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| SAQ 1 | **Examiner Use Only** |
| **A.** List **2** principal target organs for parathormone (PTH) and identify one action at each site. *(4 marks)*  *Kidney (1 mark); either increased PO4 excretion, increased Ca reabsorption, stimulation of 1α-hydroxylase activity. (1 mark for any one)*  *Bone (1 mark); stimulation of osteoclast activity (1 mark)*  **B.** Draw a labelled flow diagram illustrating the synthesis of the hormone calciferol   (dihydroxycholecalciferol) from its initial precursor 7-cholesterol. [students: apologies, for   clarity this should have read 7-dehydrocholesterol] Identify relevant catalytic agents, molecules   and organs/tissues. *(4 marks)*  *7-dehydrocholesterol*  *UV light, in skin (1/2 mark each)*  *Cholecalciferol (1/2 mark)*  *25 (OH) D3 (1/2 mark 25-hydroxlase, in liver (1/2 mark each)*  *1,25 (OH)2D3 1a-hydroxylase, kidney (1/2 mark each)*  *(calciferol)*  **C**. Identify the major target organ/tissue for calciferol and list its **2** principal effects here.  *(1½ marks)*  *The small intestine; stimulation of Ca and PO4 absorption (1/2 mark each)*  **D**. Name the polypeptide hormone from the thyroid which stimulates renal calcium excretion. *(½ mark)*  *calcitonin* |  |
|  | **TOTAL MARK** |

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| **SAQ 2** | **Examiner Use Only** |
| This is a diagram of the lateral surface of the left cerebral hemisphere.  (i). Name the labelled sulci. (*2 marks)*  **A:** *central sulcus*  **B:** *lateral sulcus/lateral fissure/Sylvian fissure*  (ii). Draw and label the position of the primary somatosensory cortex and primary visual cortex on the diagram. *(2 marks)*  (iii). Name cortical area **C** and briefly explain the effect of a lesion here. *(2 marks)*  *Broca’s area – impaired speech/loss of speech/ aphasia*  (iv). A patient has an epileptic focus located in the cortex at **D.** What behavioural change would you expect to observe during a complex partial seizure? *(4 marks)*  *Jerking/clonic movements of the right leg with associated impaired consciousness* |  |
|  | **TOTAL MARK** |

**SBAs** *select the* ***single******best*** *answer for each numbered item 1 to 8 below*

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| 1. | Androgens: | | |
|  | a) | Are produced by the adrenal medulla |  |
|  | b) | *May be converted into oestrogens in certain tissues* | **✓** |
|  | c) | Has glucocorticoid actions |  |
|  | d) | Acts via G-protein coupled receptors |  |
|  | e) | Have catabolic effects on protein |  |

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| 2. | Angiotensin II: | | |
|  | a) | Is converted from angiotensin I by renin |  |
|  | b) | Is a precursor of angiotensinogen |  |
|  | c) | Stimulates cortisol release from the adrenal cortex |  |
|  | d) | Acts directly on the zona fasciculata |  |
|  | e) | *Is a powerful vasoconstrictor* | **✓** |

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| 3. | Which of the following suppresses somatotrophin (growth hormone) secretion? | | |
|  | a) | *Somatostatin* | **✓** |
|  | b) | Hypoglycaemia |  |
|  | c) | Ghrelin |  |
|  | d) | Oestrogen |  |
|  | e) | Amino acids |  |

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| 4. | Tri-iodothyronine: | | |
|  | a) | Is the main product of the thyroid gland |  |
|  | b) | Inhibits the actions of catecholamines |  |
|  | c) | *Inhibits thyrotrophin release* | **✓** |
|  | d) | Has a half life of greater than 7 days |  |
|  | e) | Inhibits vitamin A synthesis |  |

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| 5. | Which of the following statements about the PNS is correct? | | |
|  | a) | The limbs are innervated by dorsal rami of spinal nerves |  |
|  | b) | The brachial plexus supplies the lower limb |  |
|  | c) | The nerves are surrounded by endoneurium |  |
|  | d) | The axons are myelinated by oligodendroglia |  |
|  | e) | *The area of skin innervated by a single spinal nerve is called a dermatome* | **✓** |

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| 6. | The basal ganglia are located in the: | | |
|  | a) | Brainstem |  |
|  | b) | *Cerebral hemispheres* | **✓** |
|  | c) | Diencephalon |  |
|  | d) | Peripheral nervous system |  |
|  | e) | Midbrain |  |

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| 7. | In the ANS: | | |
|  | a) | *Sympathetic activity dilates the pupil of the eye* | **✓** |
|  | b) | Preganglionic sympathetic motoneurones use the neurotransmitter noradrenaline |  |
|  | c) | Sympathetic activity constricts the bronchioles of the lungs |  |
|  | d) | Parasympathetic activity causes ejaculation |  |
|  | e) | Parasympathetic activity increases total peripheral resistance |  |

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| 8. | Astrocytes: | | |
|  | a) | Strip synapses from neurons |  |
|  | b) | *Take up glutamate* | **✓** |
|  | c) | Line the ventricles of the brain |  |
|  | d) | Are involved in antigen presentation |  |
|  | e) | Support the metabolism of dorsal root ganglion cells |  |