Extended Response 1: Mark key

Question 2

Hypothalamus controls release of hormones from the pituitary 1

Pituitary releases hormones that control many other endocrine glands/pituitary is the master gland 1

Any two of Highlighted:

1–3

• Hypothalamus regulates many basic bodily functions/regulates body temperature/water balance/heart rate/named example with function

• Pituitary hormones regulate many bodily activities/regulates growth/regulate metabolism/regulate reproductive cycles/named example with function

• Infundibulum connects hypothalamus to pituitary

• Hypothalamus works differently for the two lobes of pituitary

Posterior

Hormones are produced in cell bodies located in the 1

hypothalamus/not produced by pituitary Hormones are transported down the axons (neurosecretory cells)of the cells to the posterior lobe 1

Hormones stored in posterior lobe 1

Released via nervous stimulation 1

Anterior 1 Hormones produced in anterior lobe. Blood vessels (hypothalamic-hypophyseal portal system) connects hypothalamus with the anterior lobe 1

Released via chemical/hormonal stimulation 1

Inhibiting and releasing factors secreted by hypothalamus 1

Total 12

(b) Contrast the modes of action of steroid and amine hormones. (8 marks)

Description Marks

Steroid

1–4

Any four of:

• Receptor inside cytoplasm/receptor on nucleus

• Moves through cell membrane

• Hormone receptor complex forms inside cytoplasm

• Enzymes activated inside nucleus/organelles

• Genes activated to form a particular protein

• Slower acting/effects in hours or days

Amine

1–4

Any four of:

• Receptor on the surface/cell membrane

• Stays outside of cell

• Hormone receptor complex forms on the cell

membrane/surface

• Enzymes activated within the cytoplasm

• Secondary messenger within cytoplasm is activated

• Faster acting/effects in seconds or minutes

Total 8