2012

Name: _____ Score: _____/20

APPLECROSS SENIOR HIGH SCHOOL
3A/3B HUMAN BIOLOGOLGICAL SCIENCES
TEST 3:
NERVOUS SYSTEM AND ENDOCRINE SYSTEM

PART B: SHORT ANSWER

31. Next to each definition (in the left hand column) state the gland it describes. Use the list of glands provided. The glands listed may be used more than once or not at all. It may be necessary to be specific i.e. rather than the whole gland, specific part of the gland.

Anterior pituitary, Adrenal gland, Pancreas, Pineal gland, Adrenal cortex, Posterior pituitary, Thyroid gland, Pituitary gland, Adrenal medulla, Parathyroid gland

GLAND	DEFINITION
Pituitary.	1. What is the "Master Gland?"
Thyroid	2. This gland secretes calcitonin.
Pancreas	3. This gland secretes insulin.
Thyroid	4. Hormones from this gland help regulate metabolism of carbohydrates, lipids, and proteins.
Ant. Pituitary	5. This gland secretes thyroid stimulating hormone (TSH).
Post. Pituitary.	6. This gland secretes Oxytocin (OT).
Adrenal Medulla	7. This gland secretes epinephrine and norepinephrine.
Post. Pituitary.	8. This gland secretes a hormone that regulates the amount of water reabsorbed into the blood from the kidneys.
Adrenal Cortex	9. This gland secretes cortisol and aldosterone.
Ant. Pituitary.	10. This gland secretes Growth Hormone (GH).

(10 marks)

32. Identify the parts numbered 2 to 7 indicated in Figure 4.

2. receptor

3. sensory / afferent neuron

4. interneuron / connector neuron / association

5. white matter

6. motor neuron

7. effector

(6 marks)

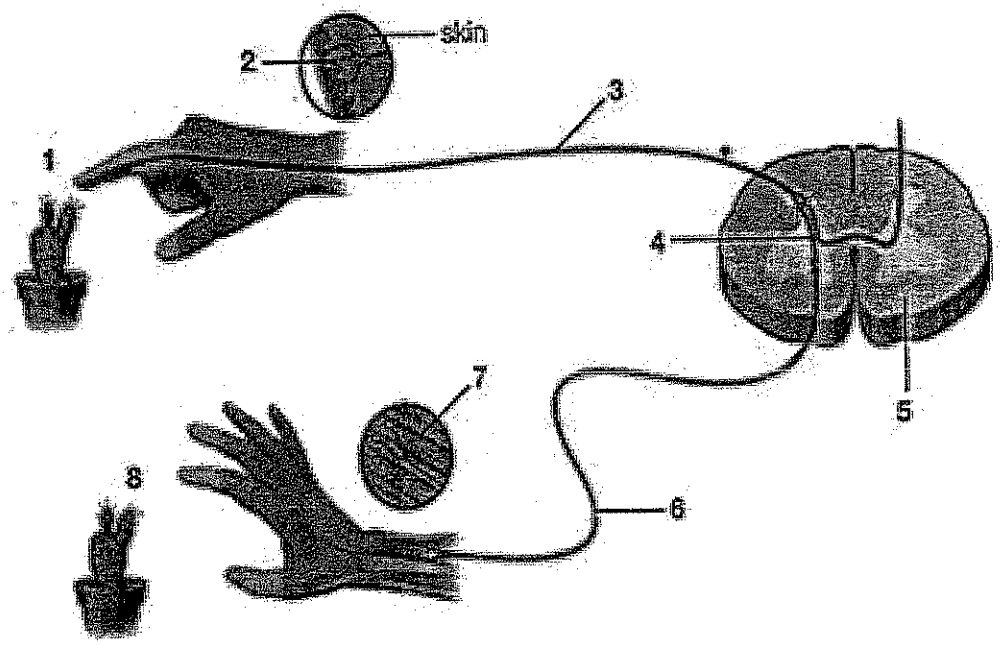

Figure 4. Reflex Arc

33. Figure 5 is a graph representing the electrical potential measured across a neuron's membrane.

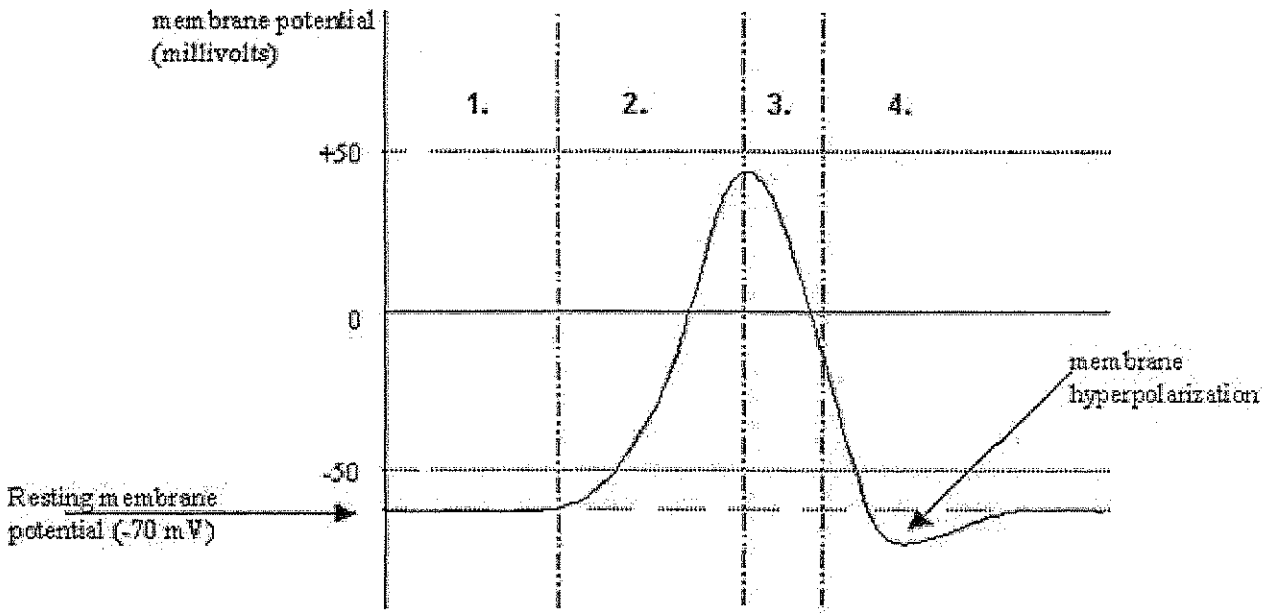

Figure 5. Membrane potential in a neuron.

Describe what is occurring at Stages 1 to 4. in the axon of a neuron

1.) resting membrane @ -70 mV
neuron at rest — both closed
* Na^+ outside membrane. (extracellular - +ve)
K^+ inside membrane. (intra cellular - -ve)

2) stimulus causes Na^+ channels to open -
* Na^+ enters the axon causing depolarisation -
threshold is passed - action potential initiated.
* K^+ channels are closed. interior more positive

(3) - Na^+ channels close * + inactivate
- K^+ channels open, K^+ leaves neuron
- repolarisation of axon — interior of cell more negative than outside.

(4) part of 3
Na^+ pumped out } + K^+ channels close slowly, causing a brief hyperpolarisation
K^+ pumped in } over compensation - leads to hyperpolarisation

(4 marks)