



Dr. Blossa Science

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## SENIOR FOUR

553/1

## BIOLOGY

## PAPER 1

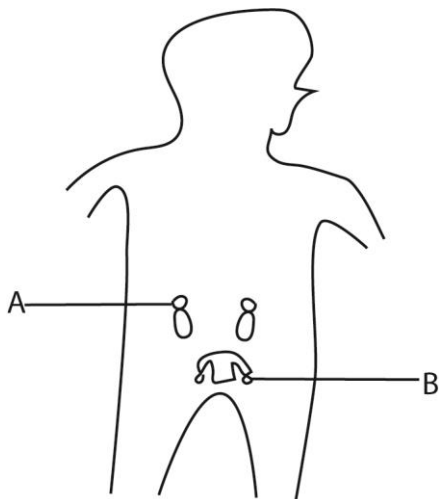
## EXAM 17

2hrs

1.a) Distinguish between **endocrine** and **exocrine** glands.

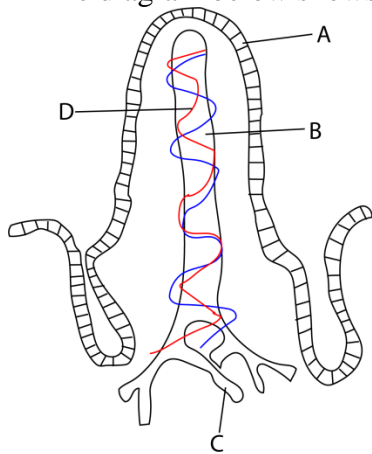
Exocrine glands secrete their substances through ducts onto your body's surfaces. On the other hand, endocrine glands secrete their substances directly into your bloodstream

b. Below is a diagram of a **human female** showing the location of two **endocrine glands**.



- c. Name the glands **A** and **B** and one hormone produced by each.
- A. Adrenaline,
  - B. Oestrogens, progesterone
- d. Give **three** effects of adrenaline in the body.
- i. Cause heart to beat faster
  - ii. Causes fast breathing
  - iii. Pupil widen
  - iv. Causes sweating
  - v. Increase blood sugar
  - vi. Increases blood pressure and increases blood flow to brain and muscle

QN2. The diagram below shows the structure of the villus



- (a) Label parts marked A, B, C and D.
- A. Epithelium
  - B. Lacteal
  - C. Lymphatic system
  - D. Blood vessels
- (b) What food substance enter
- (i) A glucose, amino acids, water, vitamins
  - (ii) B fatty acids

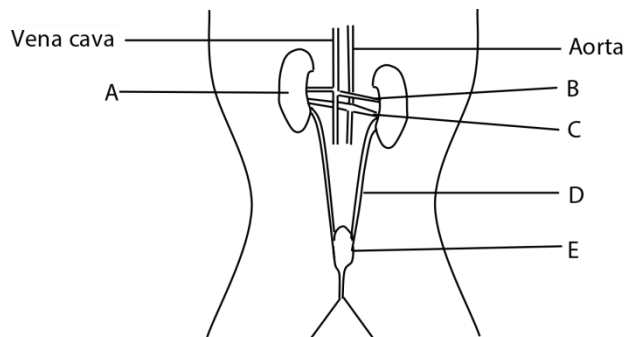
(c) State two factors which make a villus an effective absorption structure.

- (i) Villi are thin to increase surface area for absorption
- (ii) Well supplied by blood to carry away absorbed food so as to maintain diffusion gradient
- (iii) The villi have thin membrane to reduce diffusion gradient
- (iv) Villi have high concentration of mitochondria to provide energy for active transport.
- (v) Villi contain lacteal for absorption of fats

(d) How does the absorbed food in B reach the general circulation?

through internal jugular vein State two nutrients which are absorbed before reaching the villi.

QN3 The figure below shows a mammalian urinary system



(a) Name parts A-F

- A. Kidney
- B. Renal vein
- C. renal artery
- D. ureter
- E. bladder
- F. urethra

(b) Briefly explain why the concentration of urea in B is less than that in C.

because urea and other waste products are removed by the kidney

(c) What is the function of E?

Temporary storage of urine

(d) A sample of urine was found to contain sugar

(i) Suggest the type of sugar likely to be in urine sample:

Glucose

(ii) What hormone is likely to be deficit in a person from whom the urine sample was taken:

Insulin

(iii) Name the disease that the person is likely to be suffering from:

Diabetes mellitus

G. Another individual was passing out a lot of urine but without sugar and complaining of thirst most of the time.

(i) Suggest a hormone that is deficient in this individual:

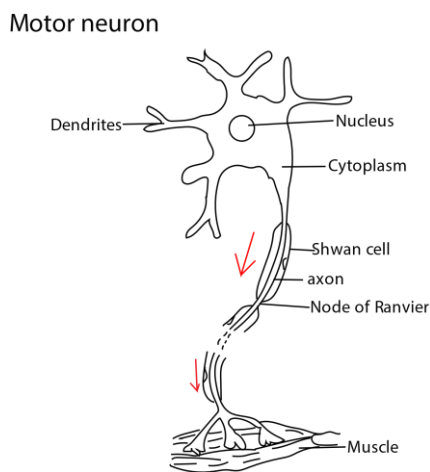
ADH –antidiuretic hormone

(ii) Name the organ which produces the hormone referred to in (e)(i) above.

Pituitary

## SECTION B

4. a). Describe the structure of a motor neuron.



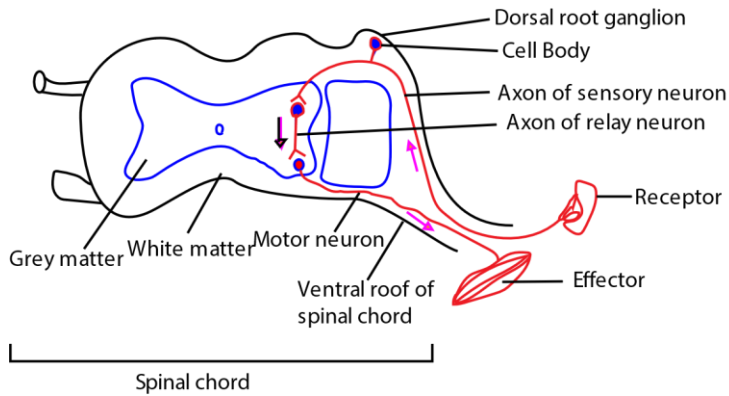
### Functions of parts of nerve cell

- Nerve fibre or axon transmits impulses
- The myelin sheath protects the axon; it also insulates the axon and speeds up transmission of impulse.
- Nucleus controls cellular activity
- Dendrites or make contacts with other nerve cells or effector
- Nodes of Ranvier are microscopic gaps found within myelinated axons. Their function is to speed up propagation of action potentials along the axon via saltatory conduction
- The cell body preserves the structural integrity of the neuron, houses the genetic material, and supplies energy to drive activities.

b). What is meant by a reflex action?

The reflex action is a rapid, automatic stereotyped response to a stimulus which is not under the conscious control of the brain.

c. By means of a diagram, show the path followed by a nerve impulse during a reflex action.



From the receptor impulse is conducted through the sensory nerve to the brain and from the brain to the effector through a motor neuron

5. a) What is soil erosion?

is the washing away of top soil

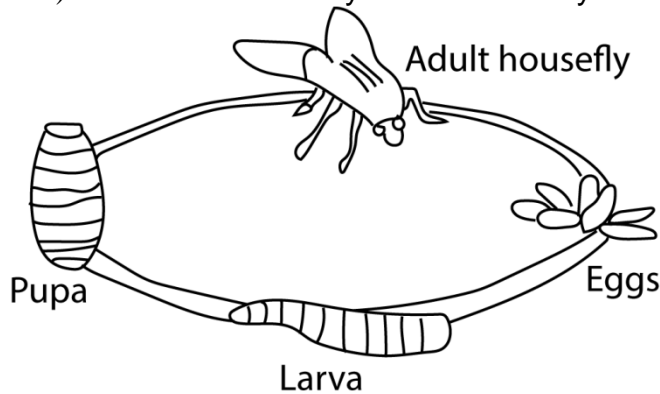
b) State the various types of soil erosion.

- sheet erosion
- rill erosion
- gully erosion

c) Explain how man's activities may lead to soil erosion.

- Overgrazing
- Clearing land for agriculture
- Deforestation
- Road construction
- monoculture

6. a) Describe the life cycle of a housefly.



b) What is the economic importance of a house fly?

Transmits diseases e.g. dysentery, cholera, trachoma, typhoid fever and poliomyelitis.

c) How will you minimize the spread of houseflies in a home?

General cleanness and hygiene

Use insecticides.

***END***