

WANYANGE GIRLS SECONDARY SCHOOL

S.4. BIOLOGY WORK 12Th APRIL 2020

QUESTIONS ON GASEOUS EXCHANGE

1.

- a) What is gaseous exchange surface?
- b) Give five examples of gaseous exchange structures stating the organism in which they are found
- c) Explain four features that adapt gaseous exchange surfaces to their function
- d) Briefly discuss the adaptations of the alveolus to its function
- e) Discuss the mechanisms of inhalation and exhalation in man
- f) i) Draw and label structure of a gill
 - ii) Give the function of each parts on a gill
 - iii) Give three adaptations of gill filaments
 - iv) Why is the gill bar curved?

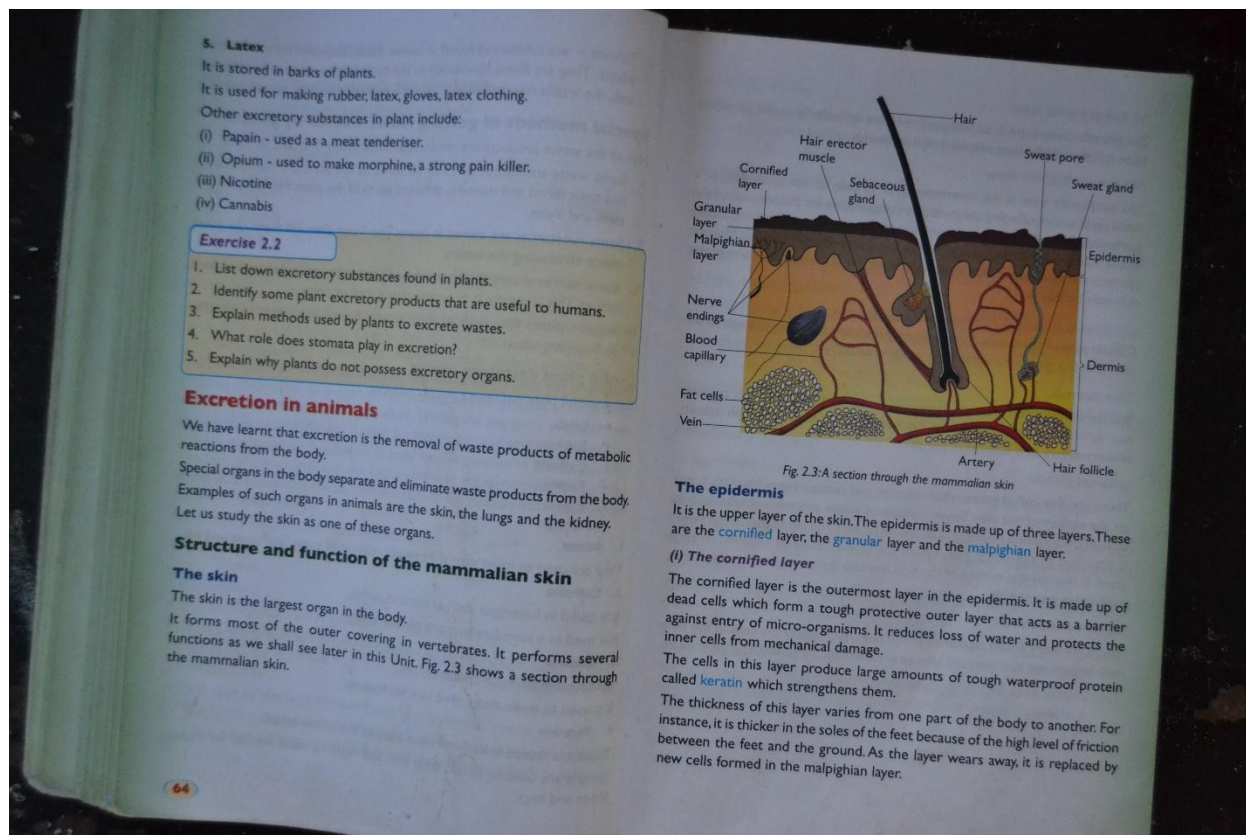
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QUESTIONS ON EXCRETION IN ANIMALS

1. a) Name the excretory tissues or organs in humans

Read the following information and answer the following questions



(ii) The granular layer

The granular layer is made of living cells which eventually form the cornified layer. It is the middle layer of cells in the epidermis.

(iii) The malpighian layer

The malpighian layer is the innermost layer of cells of the epidermis. It is made up of actively dividing cells which are responsible for the renewal of the epidermis. The cells in this layer contain **melanin** pigment which contributes to the colour of the skin. The more it is, the darker the skin colour. Melanin protects the skin against ultra violet light from the sun which can damage the skin cells beneath it.

Caution:

Certain substances in skin creams destroy melanin and cause damage to the skin. Exercise great care when buying skin creams.

The dermis

The dermis is thicker than the epidermis, and is located below it. It contains hair follicles, sweat glands, blood capillaries, nerve endings, lymph vessels, sensory organs and sebaceous glands.

(i) Sweat glands

These are tiny coiled tubes which secrete and release sweat through pores on the surface of the skin. Sweat consists of water and mineral salts such as sodium chloride and traces of urea and lactic acid. The liquid that forms sweat is absorbed by the sweat glands from the blood capillaries supplied to each gland. It reaches the surface of the skin through the pore, and the water in it evaporates into the air.

(ii) Blood capillaries

There are many blood capillaries in the skin. They supply the cells in the skin with oxygen and nutrients and take away carbon dioxide and waste substances.

(iii) Hair follicles

These are tiny pits in the dermis. Hair grows inside the follicle due to addition of cells to it at the bottom of the pit. Hair is made up of dead skin and protein called keratin.

(iv) Sebaceous glands

Sebaceous glands are small glands which open into the hair follicle. They produce an oily secretion called **sebum**, which keeps the skin soft and has antiseptic properties to kill bacteria on the skin. Sebum also makes hair water proof.

(v) Hair erector muscle

The erector muscle is attached between the bottom part of the hair follicle and the epidermis. When it contracts the hair fibres stand upright and small goose pimples or swellings appear on the skin.

When it relaxes the hair lies flat on the skin.

Beneath the dermis is a layer of cells in which fat is stored. This layer is called the **subcutaneous fat layer**. It acts as a heat insulator.

Functions of the skin

1. Excretion

The skin eliminates waste substances like traces of urea, lactic acid, excess salts and water through sweat.

These substances are transported to the sweat gland through the blood capillaries. They diffuse out of the blood into the sweat gland to form sweat which moves to the skin pore on the surface through a sweat duct.

Sweat evaporates from the sweat pore into the environment, eliminating the waste products in the process.

2. Temperature regulation

(Thermoregulation)

The skin plays an important role in regulation of temperature in organisms whose body temperature is kept constant ("warm blooded" animals).

- b) Name the largest body organ that has an excretory function in humans
- c) List six functions of the organ named in b) above.
- d) Draw and label structure of named organ in b) above
- e) State the adaptation and function of at least five of the above named par

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S.5. BIOLOGY WORK 12Th APRIL 2020

QUESTIONS ON ECOLOGY

1. Define the following terms

- a) Biosphere
- b) Habitat
- c) Niche
- d) A community
- e) An Ecosystem
- f) A Biome
- g) A zone
- h) Population
- i) Primary productivity
- j) Trophic level

2. Discuss the Physical, Edaphic and Biotic factors that affect organisms lives in an environment

3. Explain the role of plants in an Ecosystem