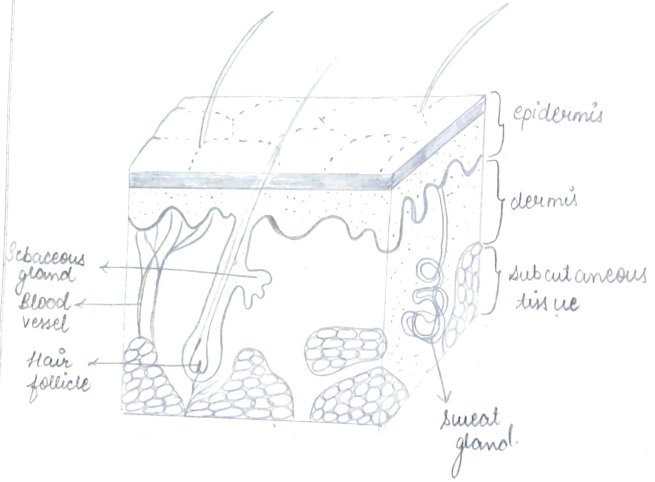


Mammalian Skin

Expt. No. _____ Page No. 30 Date 07/04/25

Permanent Slide

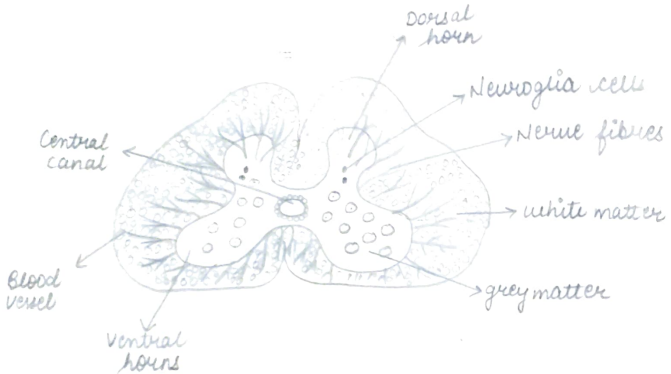
Mammalian Skin ⇒

(1) Mammalian skin is made distinct by the presence of different types of glands and hair.
(2) Two layers are seen clearly in this section - outer layer is epidermis and inner layer is dermis
(3) Hair is moved involuntarily by the arrector muscles.
(4) Below the epidermis. It is made of areolar connective tissue. It has collagen fibres, elastic fibres, histocytes, fibroblasts and mast cell.
(5) Below dermis is a layer of adipose tissue.

Functions ⇒

Skin performs many functions. It gives shape to the body, protects the underlying tissues from injury, helps in maintaining a constant body temperature, detecting sensation etc.

Teacher's Signature _____



Spinal Cord

Expt. No. _____ Page No. 31 Date _____

Spinal Cord ⇒

(1). Spinal cord is an elongated white, tubular thick walled structure composed of nervous tissue. It passes through the neural canal of the vertebral column.

(2). The spinal cord is covered by 3 membranous layers or menings. The meninges from the outer side are duramater, arachnoid and piameter.

(3) Section of the spinal cord shows 2 types of nervous tissue.

(i) Gray Matter : It is formed by neuronal cell bodies

(ii) White Matter : It is formed chiefly of neuronal fibres.

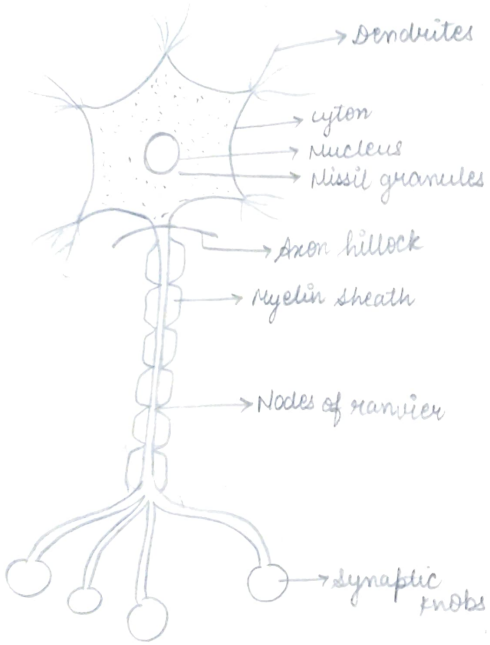
(4) The gray matter is H-shaped or butterfly shaped and is central in position. It has a central canal that contains cerebrospinal fluid.

(5). Dorsolaterally and ventrolaterally the gray matter projects as paired dorsal and ventral horns.

Functions ⇒

Spinal cord plays an important role primarily in reflex actions. It also conducts impulses to and fro from brain.

Teacher's Signature _____



Nerve Cell

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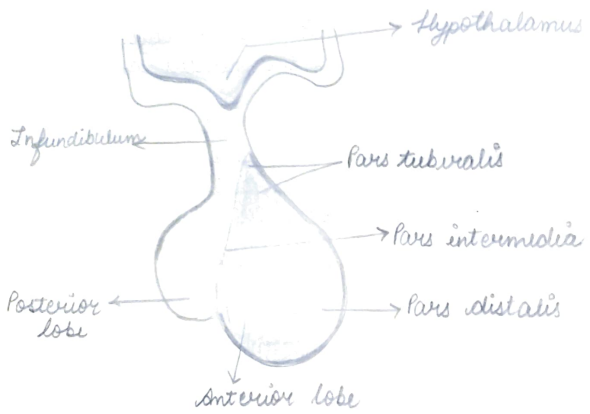
Nerve Cell ⇒

(1) The nerve cell is an electrically excitable cell that has several parts – cyton, axon and dendrites.
(2) Cyton (soma) or body bears the nucleus and most of the organelles of the cell.
(3) The axon is a filament like branch arising from the so called axon hillock of the soma.
(4) Dendrites are cytoplasmic projections arising from the cell body. A multipolar nerve cell has several dendrites but only a single axon.
(5) Nerve cell bodies stained with basophilic dyes show characteristic Nissl's granules. These are sites of presence of rough endoplasmic reticulum.
(6) Nerve cells are found in the brain, the spinal cord, peripheral nerves and are also present in nerve plexuses in several visceral organs.

Function ⇒

Nerve cell are involved in electrical communication and along with hormones constitute the regulatory system of the body.

Teacher's Signature _____



Pituitary Gland

Expt. No. _____ Page No. 33 Date _____

Pituitary Gland ⇒

(1) The pituitary gland or hypophysis is called the master endocrine gland because its hormones control the secretions of other glands.
(2) The pituitary gland is formed by the union of
(a) The adenohypophysis (or anterior pituitary)
(b) The neurohypophysis (or posterior pituitary)
(3). It is attached to the hypothalamus by a stalk called the infundibulum.
(4). It lies in a bony depression called the sella turcica that lies at the base of the brain.
(5). Anterior and posterior pituitary are separated by pars intermedia which has several colloid filled vesicles.

Function ⇒

(1). Acidophils of anterior pituitary secrete growth hormone (somatotrophs) and prolactin (mammotrophs).
(2) Pars intermedia produces melanocyte stimulating hormone.

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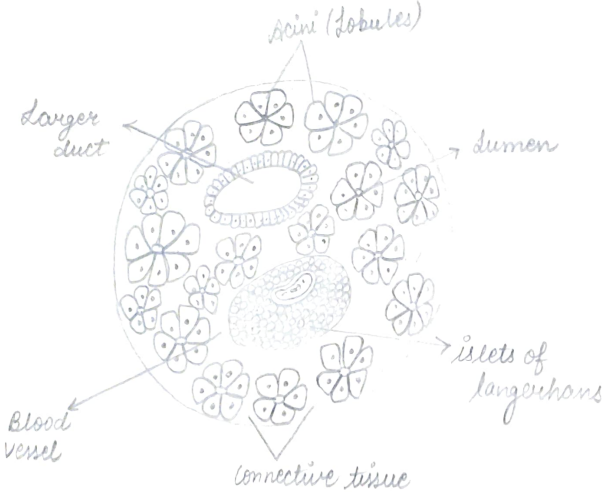

Pancreas

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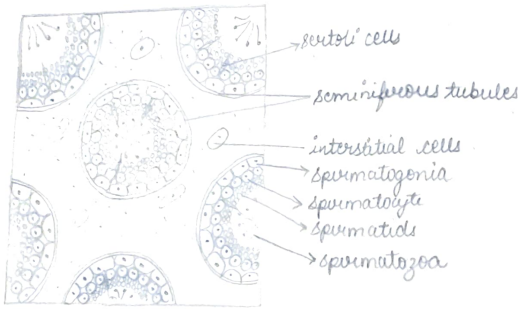
Pancreas →

(1) Pancreas is present in the U-shaped duodenal loop
Pancreas has both exocrine and endocrine parts
(2) The endocrine part has islets of langerhans
(3) There are 2 types of cells - α and β in the islets of langerhans.
(4) The exocrine part includes pancreatic acini
(5) Each acinus has 8-20 secretory cells around a central lumen.
(6) The section also shows pancreatic arteries, veins and blood capillaries.

Function →

(1) α- cells produce glucagon and β- cells produce insulin
(2) The acini produce pancreatic juice that helps in digestion.

Teacher's Signature _____



Testis

Expt. No. _____ Page No. 35 Date _____

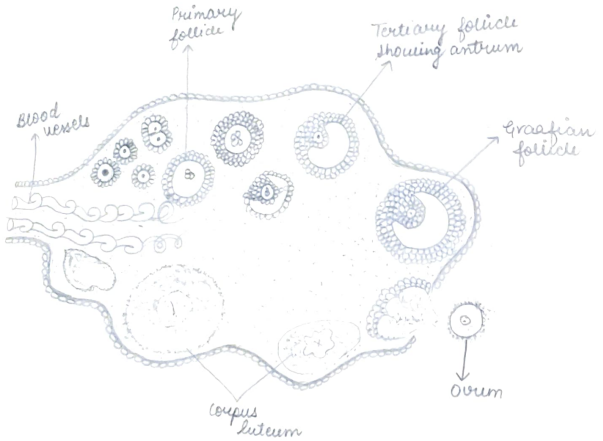
Testis ➢

(1). Rabbit has a pair of oval and smooth testis. Each testis is covered by a layer of tunica albuginea
(2) The glandular part of the testis is made of several seminiferous tubules of varying diameter. In the section cut seminiferous tubules are seen.
(3) Connective tissue fills the space in between the seminiferous tubules
(4) Testis have an outer covering of serosa that is a tough fibrous layer
(5) Sertoli cells that provide nutrition to the developing spermatozoa are present in the seminiferous tubules

Function ➢

Testis produce sperms and the male hormone testosterone

Teacher's Signature _____



Ovary

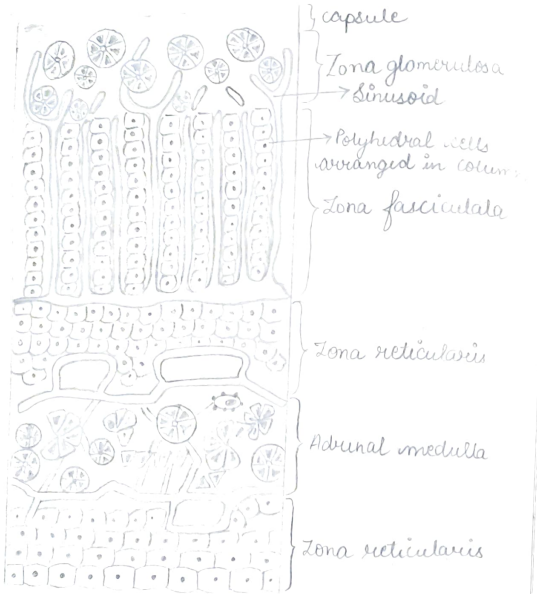
Ovary ⇒

(1) The ovaries of rabbit are present at the back of the peritonial cavity and covered with peritoneum. The outermost layer is called the ovarian surface epithelium made of a single layer of low cuboidal or squamous cells.
(2) A fibrous connective tissue layer, the tunica albuginea, lies between the germinal epithelium and the cortex.
(3) The outer peripheral part of the ovary is called cortex and the inner central part is called medulla.
(4) The cortex contains ovarian follicles embedded in dense connective tissue or stroma.
(5) The medulla contains loose connective tissue, blood vessels and nerves.

Functions ⇒

- Ovaries produce oocyte under the influence of the hormones -FSH (Follicle stimulating hormone) and LH (Luteinizing Hormone). FSH brings about development of ovarian follicles where as LH brings about development of corpus luteum.
- Ovaries secrete the hormones estrogen and progesterone.

Teacher's Signature _____



Adrenal Gland

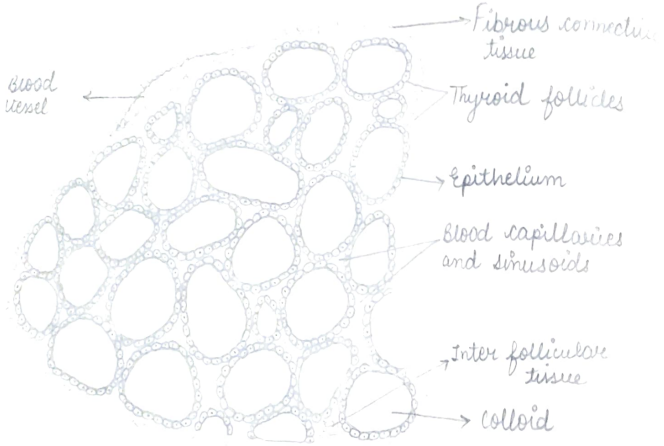
Adrenal Gland ⇒

(1) There is a pair of adrenal glands, one above each kidney. It is also called the suprarenal gland.
(2) The adrenal gland is surrounded by a thick capsule made of connective tissue. The capsule extends into the adrenal gland as short trabeculae
(3) It has two parts: an outer cortex and an inner medulla
(4) The adrenal cortex is divided into 3 parts
ⓐ Zona glomerulosa
ⓑ Zona fasciculata
ⓒ Zona reticularis
(5) The adrenal medulla is made of chromaffin cells that are relatively lightly stained.

Function ⇒

(1) Cells of the adrenal cortex produce different hormones
(a) Zona glomerulosa: secrets mineralocorticoids (aldosterone)
(b) Zona fasciculata: secrets glucocorticoids (cortisol)
(c) Zona reticularis: secretes androgens
(2) Cells of adrenal medulla produce stress hormone (epinephrine and norepinephrine).

Teacher's Signature _____



Thyroid gland

Expt. No. _____ Page No. 30 Date _____

Thyroid Gland ⇒

(1). This is an endocrine gland. It has 2 lobes, one on either side of trachea. They are joined ventrally by an isthmus.

(2). Structurally, it has round or oval thyroid follicles separated by connective tissue strands.

(3). Connective tissue has blood vessels, nerves and lymph vessels.

(4). It is innervated by nerves of sympathetic nervous system.

(5) Follicles are filled with a colloid consisting of mucoproteins and thyroglobulin.

Function ⇒

It secrets the thyroid hormons triidothyronine (T_3) and thyroxine (T_4). T_3 and T_4 are responsible for regulation of metabolism.

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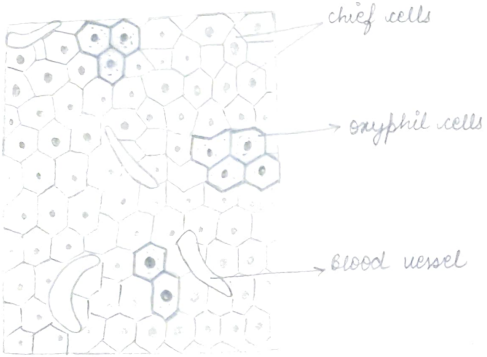

Parathyroid Gland

Expt. No. _____ Page No. 39 Date _____

Parathyroid Gland ⇒

(1) Parathyroid gland is an endocrine gland.
(2) Mammals have four oval parathyroid glands embedded in the posterior side of the thyroid gland
(3) The gland is surrounded by a connective tissue capsule
(4) Cells of the glands are arranged into clumps and have several blood vessels
(5) The gland have two types of cells
(a) Chief cells
(b) Oxyphil cells.

Functions ⇒

1. Chief cell of parathyroid gland produce the hormone parathormone (PTH) that regulates serum calcium levels
2. Oxyphil cells may not be present at birth and increase in no. with age. Their function is uncertain.

Teacher's Signature _____