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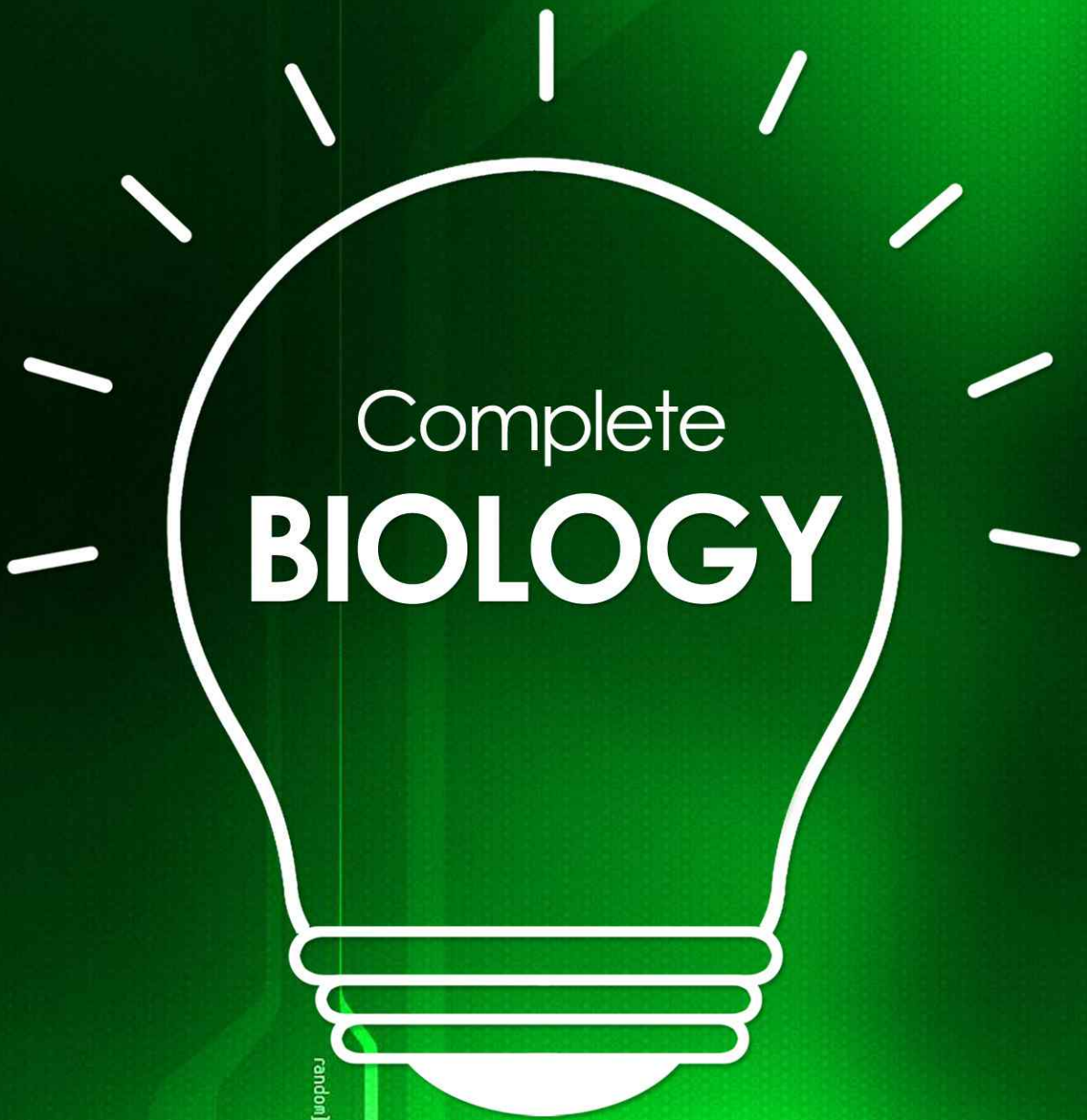

Complete BIOLOGY

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CLASS 11&12th

Learning Inquiry
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CLASS 12th

Human Reproduction

01. Introduction

The reproductive system of sexually reproducing animal consist of :

- Primary sex organs (called gonads) which produce gametes and hormones.
- Secondary sex organs which participate in reproduction but not form gametes.
- Accessory sex organs cause difference in the appearance of two sexes.

02. Primary sex organs

The primary reproductive organs, or gonads, consist of the ovaries and testes. These organs are responsible for producing the egg and sperm cells and hormones. These hormones function in the maturation of the reproductive system, the development of sexual characteristics, and have important roles in regulating the normal physiology of the reproductive system. All other organs, ducts, and glands in the reproductive system are considered secondary, or accessory, reproductive organs.

03. Male reproductive system

The male reproductive system consists of glands with their ducts and supporting structures

(i) The glands include a pair of testes, a pair of seminal vesicles, a pair of bulbourethral (Cowper's) glands, and one prostate gland.

(ii) Ducts of testes include a Pair of epididymis, a pair of vas deferens, a pair of ejaculatory ducts, and one urethra.

(iii) Supporting structures are divided into: *Internal* - a pair of spermatic cords and External-Scrotum and penis.

04. Testes

The male gonads, testes, begin their development high in the abdominal cavity. near the kidneys. During the last two month before birth, or shorty after birth, they descend through the inguinal canal into the **scrotum,** a pouch that extends below the abdomen, posterior to the penis. Although this location of the testes, outside the abdominal cavity, may seem to make them vulnerable to injury, it provides a temperature about 3°C below normal body temperature. This lower temperature is necessary for the production of viable sperm. The incomplete descent of testes on one or both sides in a newborn is called *cryptorchidism,* the testes remaining in the abdominal cavity or inguinal canal. Each testes in an oval structure. A tough, white fibrous connective tissue capsule, the **tunica albuginea,** surrounds each testes and extends inward to form septa that partition the organ into lobules. There are about 250 lobules in each testes. Each lobule contains 1 to 4 highly coiled **seminiferous tubules** that converge to form a single straight tubule, which leads into the **rete testes.**

Short efferent ducts exit the testes. **Interstitial cells** (cells of Leydig), which produce male sex hormones, are located between the seminiferous tubules within a lobule.

Functions of testes

(i) Production and storage of viable sperms.

(ii) Synthesis and secretion of the androgenic hormone, testosterone. Both these functions are under anterior pituitary and hypothalamic control.

Ducts of the testis

pressure generated by the fluid secreted by Sertoli cells pushes sperm and fluid along the lumen of the seminiferous tubules and then into a series of very short ducts called straight tubules. The straight tubules lead to a network of ducts in the testis called the *rete testis.* Form the rete testis, sperm move into a series of coiled efferent ducts in the epididymis that empty into a single tube called the *ductus epididymis.*

Epididymis

The epididymis is a comma-shaped organ about 4 cm (1.5 in.) long that lies along the posterior border of each testis. Functionally, the epididymis is the site of sperm maturation, the process by which sperm acquire motility and the ability to fertilize an ovum. The occurs over a period of about 14 days.

Ductus deferens

Functionally, the ductus deferens conveys sperm during sexual arousal from the epididymis toward the urethra by peristaltic contractions of the muscular coat.

Ejaculatory ducts

Each ejaculatory duct is about 2 cm (1.in.) long and is formed by the union of the duct form the seminal vesicle and the ampulla of the ductus deferens.

Urethra

In males, the urethra is the shared terminal duct of the reproductive and urinary systems; it serves as a passageway for both semen and urine. About 20cm (8 in.) long, it passes through the prostate, the deep muscles of perineum, and the penis.

05. Accessory glands

The accessory glands of the male reproductive system are the *seminal vesicles, prostate gland, and the bulbourethral glands.*

06. Seminal fluid

Seminal fluid, or semen is the fluid that is ejaculated at the time of orgasm. It is a slightly alkaline mixture of sperm cells and secretions form the accessory glands. Secretions form the seminal vesicles make up about 60 percent of the volume of the semen, with most of the remainder coming from the prostate gland.