

Subject – Biology

Class- 12

Topic – Reproductive system of human

Very Short Answer Type Questions

1. Write functions of corpus luteum.
2. Which cells in testis act as endocrine gland? Write name of hormone secreted by these.
3. Write the name and function of hormone secreted by Leydig cells.
4. Write names of primary reproductive organs of human male and female.
5. What do we call the mucous layer found on the internal cavital surface of uterus?
6. Write any two secondary sexual characters of human female.

Short Answer Type Questions

1. What changes are seen in human male and female at onset of puberty?
2. In winter, the scrotal sacs constrict and become small. Explain.
3. What is gene purakata?
4. What do you understand by Sertoli cells? Write their functions.
5. Draw a well labelled diagram of breast glands of females and explain how are these helpful in reproductive process.
6. Draw a labelled diagram of transverse section of testes and write its function.

(from Ch-35 - Diagram)

(Diagram Notes)

Essay Type Questions

1. Draw a labelled diagram of reproductive organs of human male and describe in detail.
2. Explain the structure of ovary.
3. Describe the different glands of human male and female reproductive organs which are helpful in reproductive process.

4. Write short notes on :

(i) Ovary

(ii) Penis

(iii) Epididymis

(iv) Secondary sexual characters

(v) Corpus luteum

1. (a) 2. (a) 3. (d)

Reproductive System

Q1. Define Reproductive system.

The reproductive system or genital system is a system of sex organs within an organism which work together for the purpose of sexual reproduction.

Q2. Name the primary sex organs of male and female.

Male :- Testes

Female :- Ovaries.

Q3. Name the main sex organs of male and female.

Male :- Scrotal sac, epididymis, vas deferens, penis, prostate glands and Cowper's gland.

Female :- A pair of oviduct, uterus, vagina, vulva, breast and etc.

* Male Reproductive System

Q. Which cells in testis act as endocrine gland? Write name of hormones secreted by these.

Leydig's cells or interstitial cells act as endocrine gland. Androgen hormones are secreted by these cells.

Q. Write the name and function of hormone secreted by Leydig cells.

Hormone:- Androgen hormone

Function:- It controls spermatogenesis & provides male secondary sexual characters.

Q. In winter, the scrotal sacs contract and become small. Explain.

Spermatogenesis needs a temperature of 34 to 35°C. During winter, the outside temperature is low. Hence, the scrotal sacs shrink to come closer to the body to get more heat.

Q. What do you understand by Sertoli cells? Write their functions.

Sertoli cells are also known as supporting cells or Nurse cells. Their free surface is mutilated. In this part the spermatids (pre mature sperm) remains attached with Sertoli cells.

Functions:- It provides support and nourishing disintegrate the unnecessary cytoplasm of spermatids. These also secrete the protein hormone inhibin which regulates the function of Follicle Stimulating Hormone (FSH).

Q. Draw a well labelled diagram of transverse section of testis.

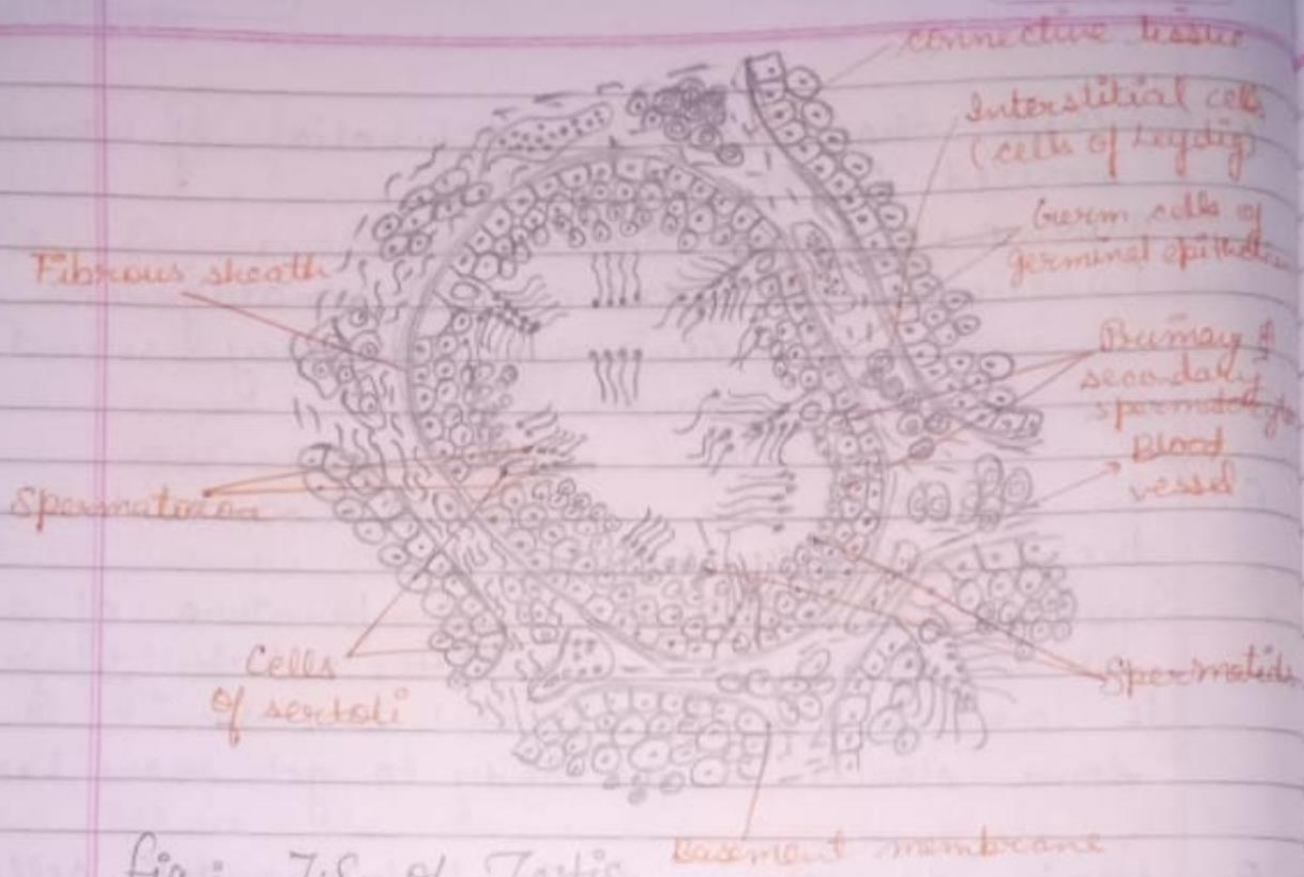
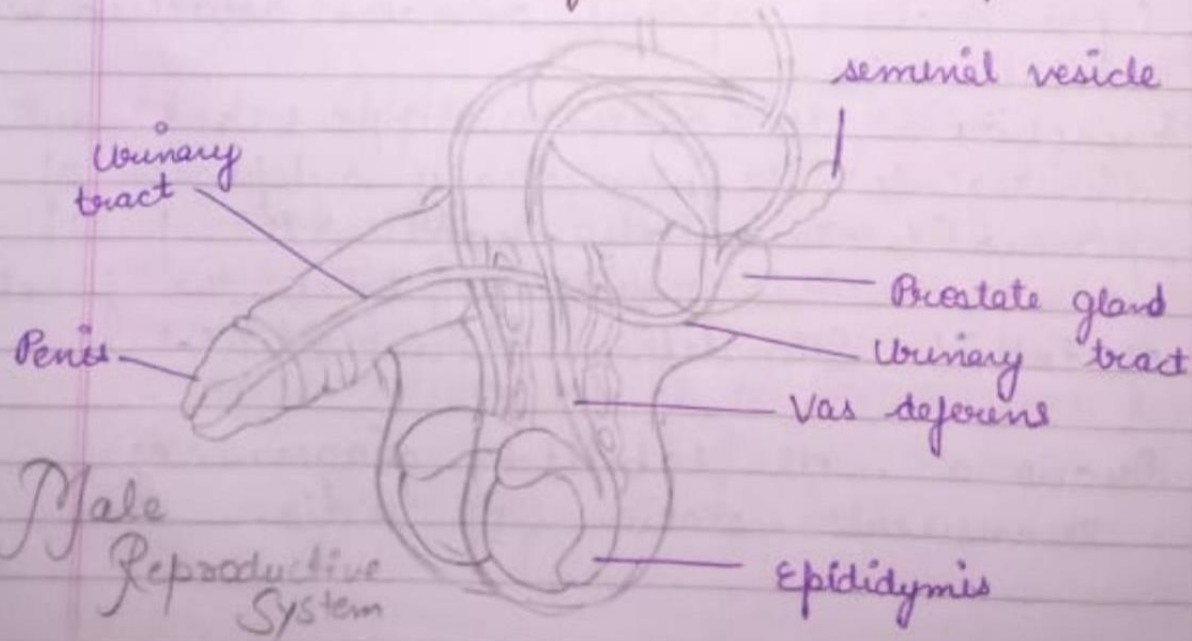


Fig: T.S. of Testis

Q: Draw a labeled diagram of human Male Reproductive System and Explain.



Male Reproductive System

It has two main components - Primary reproductive organs and accessory or. Organs.
In males, a pair of testes are primary reproductive organs or gonads.

1. Testes :

- In an adult man, there are a pair of pink and oval shaped testes which are situated outside the abdominal cavity and in the middle of both legs.
- The wall of scrotal sac is flexible, thin and hairy with a thick subcutaneous layer made up of unstriped muscle fibres inside it which is called Dartos muscle.
- A rod shaped bunch of striped or striated muscle fibres join the subcutaneous muscle layer (Dartos muscle) of each half of scrotal sac with abdominal subcutaneous muscle which is called Cremaster muscles.
- A narrow Inguinal canal is connected with the cavity of each scrotal sac.
- Inside the layer of germinal epithelium two kinds of cells are found -
 - i) Spermatogonial cells.
 - ii) Supporting cells.

→ Besides them, there are many accessory reproductive organs mainly scrotal sac, epididymis, vas deferens, penis, prostate

gland and Cowper's gland found in males.

2. Scrotal Sacs

- In most of the mammals human testes are found in scrotal sacs outside the abdominal cavity.
- The temperature of scrotal sacs is 2°C to 2.5°C lesser than body temperature due to which the maturation of sperms becomes easy.

3. Epididymis :-

- This is a thin, about 6 m long, extremely coiled, flat and comma shaped tubule.
- This tubule is divided into three parts -
 - i) Caput epididymis
 - ii) Corpus epididymis
 - iii) Cauda epididymis

4. Vasa Deferens

- Vasa deferens is about 45 cm long tubule.
- The vasa deferens begins from the posterior part of epididymis and move upward through inguinal canal enter the abdominal cavity turns downward the posterior part of urinary bladder and at last form an Ejaculatory duct.
- Sperms are temporarily stored in Ampulla. Ejaculatory ducts finally opens in urethra.

5. Urethra

- The urinary duct after emerging out of urinary bladder and then combining with ejaculatory duct, forms urogenital duct or urethra.
- This is about 20cm long canal which ends as urogenital aperture at penis top.

6. Accessory Reproductive Glands:-

Men have mainly three kinds of accessory reproductive glands, which leave their secretions in urinary tract. These all secretory substances along with epididymis and seminal vesicles secretions and sperms form semen. Following are glands.

i) Prostate Glands

- This gland is situated at the base of urinary tract. It secretes light white (whitish) alkaline liquid substance which constitutes about 25-30 percent part of semen.

ii) Seminal Vesicles:

- These are a pair of bag like structures situated between the surface of urinary bladder and rectum.
- This secretes a yellowish, sticky substance.

iii) Cowper's Gland or Bulbourethral Gland:

- Just below the prostate gland, on both sides of urinary tract there are one small oval glands called Cowper's gland.
- At the time of mating, dense, sticky

alkaline and transparent liquid is secreted by these glands.

7. Penis :-

- In human and other mammals in the middle of scrotal sac and hanging from the abdominal cavity, a long cylindrical, erectile and richly vascularised sex organ is found which is called penis.
- At the time of intercourse it gets folded behind the glands penis.

Q Write functions of testosterone hormone. Testosterone is the primary sex male sex hormone and anabolic steroid. In male humans, testosterone plays a key role in the development of male reproductive tissues such as testes and prostate, as well as promoting secondary sexual characteristics such as increased muscle and bone mass, and the growth of body hair.

FEMALE REPRODUCTIVE System.

Q. Write function of corpus luteum. It secretes two hormones :-

- i) Progesterone
- ii) Relaxin

Q What do we call the mucous layer found

on the internal cavital surface of uterus?
Endometrium.

Q Draw a labeled diagram of female reproductive system and explain.



Female Reproductive System:

In females, a pair of ovary are there in the form of primary reproductive organ.

1. Ovary:

- In females, there are two almond shaped ovaries situated in the abdominal cavity.
- Each ovary is 1.5-3 cm long and 8mm thick.
- These are attached with dorsal side wall of abdominal cavity behind the kidneys, in pelvic region by mesovarium or mesentary.
- The production of female egg (ovum) and secretion of female sex hormones Estrogen & Progesterone occurs by ovary.
- Ovary is a dense and solid organ which is

composed of thick, dense outer part
Cortex and comparatively less, internal
part medulla.

→ Besides these, a pair of oviduct, uterus,
vagina, vulva, breast and reproductive
glands are accessory organs.

2. Oviduct :

- From each ovary, about 12cm long, pear shaped and coiled muscular tube is closely connected which is called fallopian tube or oviduct or uterine tube.
- The wall of ~~it~~ oviduct is contractile and internally lined with ciliated epithelium
- The posterior oviduct opens in uterus.

3. Uterus :

- This is pear shaped hollow organ which is situated in the middle of pelvic region
- A layer of mucosal epithelium is found on the internal surface of uterus which is called Endometrium. Outside mucosa, a thick muscular layer formed of smooth muscles is found which is called myometrium.
- It opens in vagina through an external orifice.

4. Vagina:

- Cervix uteri out grows and forms a muscular membranous tube like structure called vagina.
- The wall cells of vagina store glycogen.
- The vaginal orifice (opening) remains partly closed by a thin membrane called Hymen.
- Vagina, besides copulatory organ, provides passage to menstrual flow and works as birth canal for the baby at the time of birth.

5. Vulva:

- All the external genitals of females are collectively called vulva. These are situated exactly above the perinaeum in pelvic region. Vulva includes following structures.
 - i) Mons pubis or Mons veneris.
 - ii) Labia Majora
 - iii) Labia Minora
 - iv) Clitoris
 - v) Vestibule
 - vi) Bartholin glands or Greater vestibular glands.

6. Breast:

- Breast act as accessory organs of female reproductive system. These are situated on pectoral muscles, on the front side of chest.
- These secrete milk. This milk provides nutrition to new born baby.
- Mainly small ducts emerging out from each

attached dorsally in the abdominal cavity with the help of mesovarium. The mesovarium originates from the visceral peritoneum.

- The ovary has germinal epithelium inside the mesovarium which is made up of cuboidal germ cells.
- The ovary has stroma made up of fibrous connective tissues. The peripheral part of the stroma is condensed with is called cortex and the inner less dense part is called the medulla.
- The cortical part of the ovary has ovarian follicle which are as follows -
 1. Primary follicles :
 - They are formed during embryonic stage and begin to grow at puberty.
 - It has an oogonium surrounded by one layer of follicular cells.
 2. Secondary follicles :
 - It has a primary oocyte surrounded by 2 layers of follicular cells.
 3. Tertiary follicles :
 - It has a primary oocyte surrounded by 3 layers of the follicular cells.
 4. Mature follicles or Graafian follicles :
 - It is surrounded by a membrane granulosa which consist of two layers viz. theca external & theca internal.
 - It has fluid-filled cavity, the antrum.

There is a pair of ovaries which are

- The mature follicle has a secondary oocyte which is attached to the membrane granulosa by a stalk.
- This stalk is called as germ hill or discus proliferous or cumulus oophorites.
- Graafian follicle gradually migrates to the periphery and gets protruded.
- The mature follicles bursts at the surface to release the secondary oocyte outside. It is called ovulation.

5. Atretic follicle :

- Sometimes, the Graafian follicles fails to ovulate and degenerates gradually. The degenerating Graafian follicle is called as atretic follicle and the process is called as atresis.

6. Corpus luteum.

- It has yellow coloured luteal cells containing lutein yellow pigments.
- This structure performs endocrine function & secretes progesterone and inhibin hormones.
- There is a blood clot in the centre of the corpus luteum which is called corpus haemorrhagic.

7. Corpus Albicans:

- If there is no fertilization, the corpus luteum begins to degenerate. The degenerating corpus luteum is called as corpus Albicans.
- It is colourless and non-functional.

Reproductive System

Q. Write about the secondary sexual characteristics of male and female and changes on onset of puberty.

Female :-

Softness of skin, growth of mammary glands, lack of hair on body, thin and sweet voice etc. are the secondary sexual characters of human female.

Male :-

Growth of hair on face (beard and mustache), dense hair on body, heavy voice, growth of scrotal sacs are the secondary sexual characters of male.

Changes occurring in Male & Female onset of puberty

S.No.	Male	Female
1.	Growth in size of penis, scrotal sacs, prostate gland and seminal vesicles occurs.	Growth in size of uterus, vagina, oviduct and vulva occurs.
2.	Size of testes increases and spermatogenesis begins.	Mammary glands grow on breast and monthly cycle starts with menstrual flow.
3.	Voice becomes heavy.	Voice becomes thin, acute and sweet.
4.	Hair grow on different parts like face, chest	Hair disappears.

	and pelvic part.	
5.	Fast growth of body	Fast growth in pelvic region, buttocks becomes wide and fat increases in body.
6.	Increase in secretion of Testosterone, FSH, LH etc.	Increase in secretion of progesterone.
7.	Psychological attraction towards female	Psychological attraction towards male.