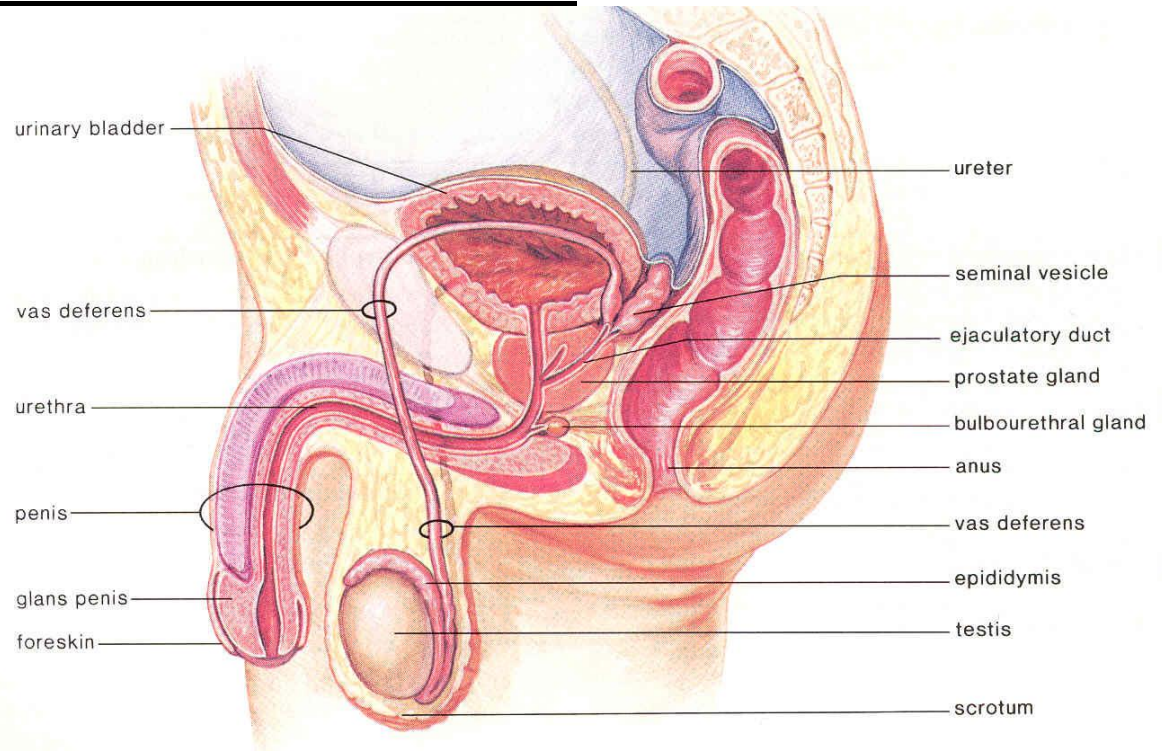


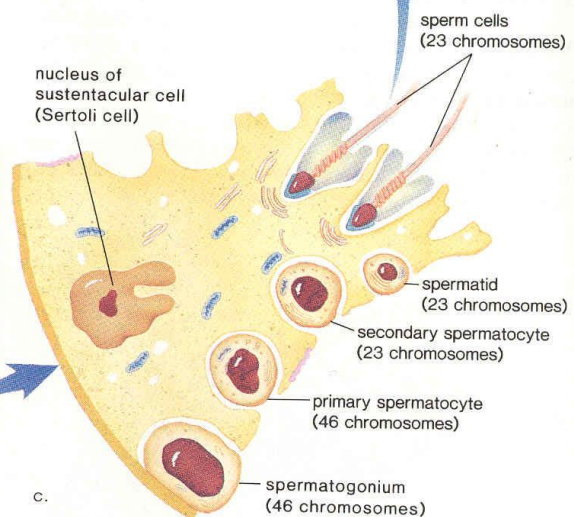
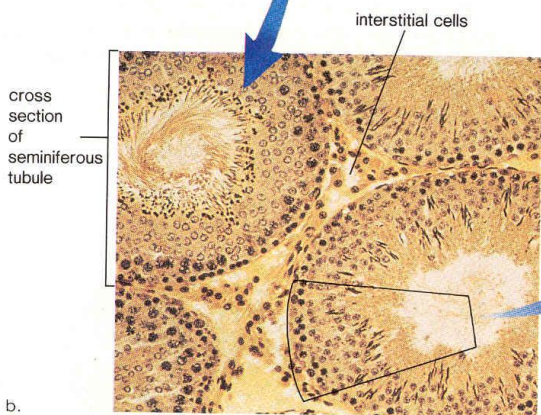
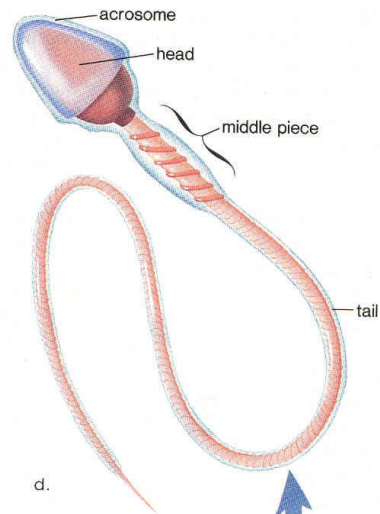
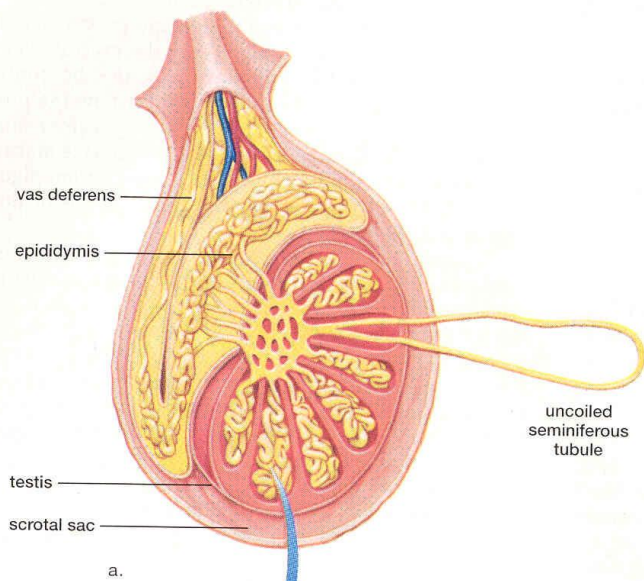
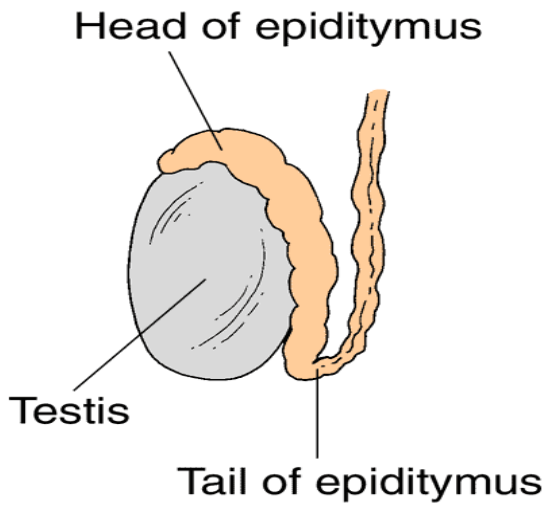
# Unit – P Notes #1 Male Reproductive System

## A) Structures and Their Functions:



### *i) Testes (male gonads)*

- Produce sperm
- Produce sex hormones
- Found in a sac called the scrotum
- Suspended outside of the body cavity for temperature reduction ( $34^{\circ}\text{C} - 35^{\circ}\text{C}$ )
- Testes wall made of fibrous connective tissue (Divides the testes into lobules (Chambers))
- Inside chambers are long tubes (70 cm) called the *Seminiferous tubules* This is the actual site for “Spermatogenesis”- Sperm Production.
- Interstitial cells secrete androgens “testosterone”



**ii) Epididymis (one per testicle)**

**-Tightly coiled tube lying on testicle, it stores sperm as they mature.**

**iii) Seminal Vesicles**

**-Contributes to seminal fluid duct connects with vas deferens.**

**iv) Cowper's Gland – (Bulbourethral Gland)**

**-Pea-sized organs that lies posterior to the prostate on either side of the urethra.**

**-Contributes to seminal fluid**

**v) Prostate Gland**

**-A single doughnut shaped gland that surrounds the upper portion of the urethra just below the bladder.**

**-Older men can have their prostate become enlarged and urination becomes quite painful. (surgically fixed)**

**-Helps produce seminal fluid**

**vi) Urethra**

**-Conducts sperm (and urine) out of the body.**

**vii) Ductus Vas Deferens**

**-Conducts and stores sperm**

**viii) Penis**

**-Serves as an organ of copulation**

**B) Path of Sperm:**

- 1. Formed in the seminiferous tubules of the testes.**
- 2. Mature and stored in the epididymis**
- 3. Some storage in first part of the Vas Deferens**
- 4. Enters the urethra just prior to ejaculation**
- 5. Accessory glands (prostate, Cowper's gland, and seminal vesicle) add secretions to semen.**
- 6. Semen exits through the penis.**

**C) Seminal Fluid:**

***SOURCES:***

- 1. Seminal Vesicle***
- 2. Prostate Gland***
- 3. Cowper's Gland***

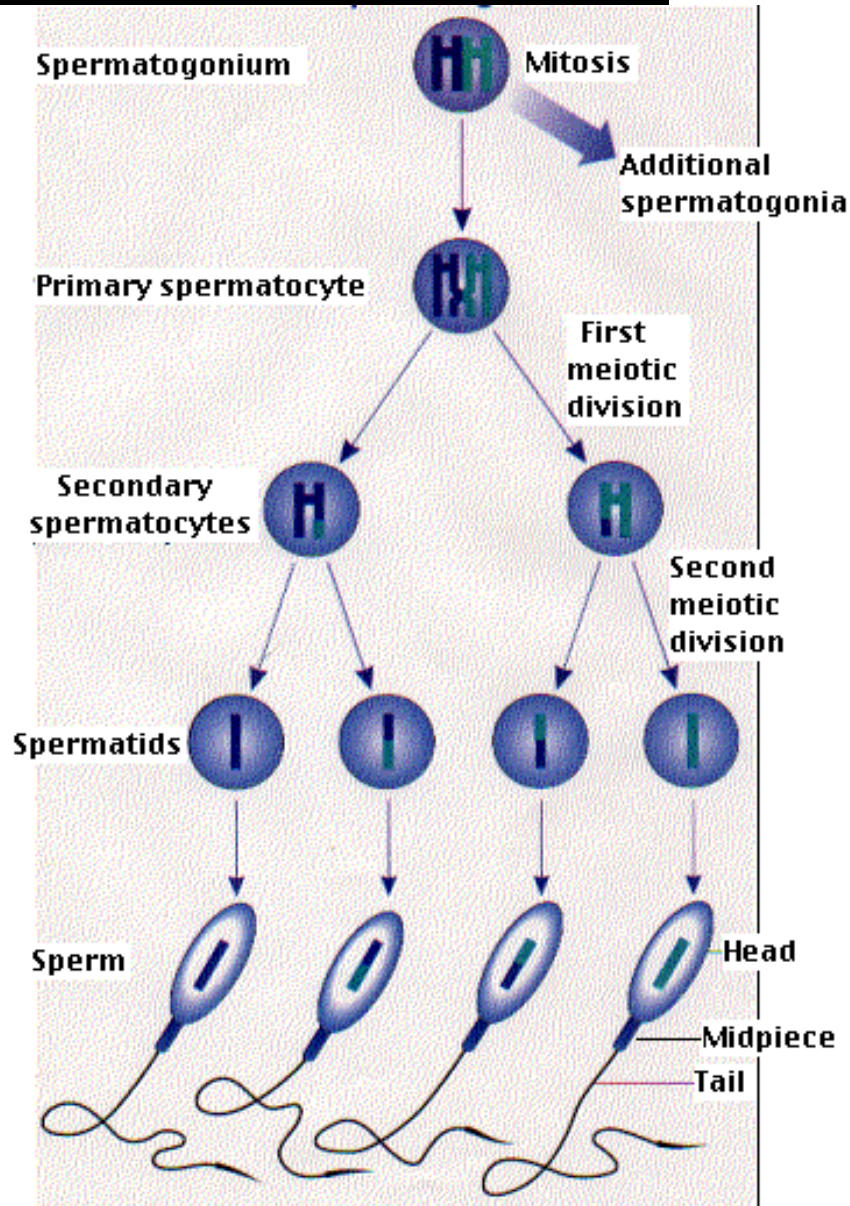
***FUNCTION:***

- 1. To produce slightly basic pH 7.5, this preferred pH of sperm (Basic) is to counteract the acidic environment of the vagina : *PROSTATE***
- 2. Provides fructose for energy for sperm :  
*SEMINAL VESICLES***
- 3. Contains prostaglandins – chemicals which cause the uterus to contract : *SEMINAL VESICLES***
- 4. Mucous (lubricant) aids in the movement of the sperm to the egg: *COWPER'S***



## 5. Acts as a lubricant for intercourse

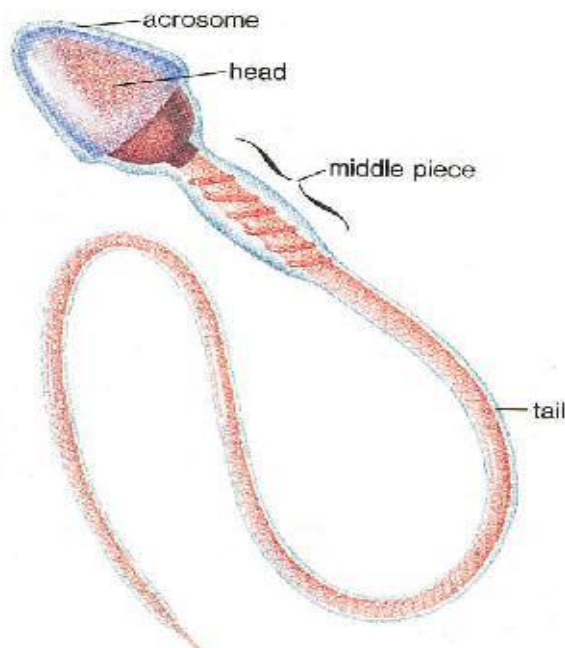
### D) Spermatogenesis: –Sperm Development



- Sperms cells are derived from undifferentiated cells called **SPERMATOGONIA** (sing. Spermatogonium), which lie just on the outside wall of a tubule and divide mitotically, always producing new spermatogonia.

- Some newly formed spermatogonia move away from the outer wall to increase in size and become *primary spermatocytes* (46 Chromosomes), which undergo meiosis (reduction-division 46 chromosomes → 23 chromosomes).
- *Primary spermatocytes*, with 46 chromosomes, divide to give 2 *secondary spermatocytes*, each with 23 chromosomes.
- *Secondary spermatocytes* divide to produce 4 *spermatids*, also with 23 chromosomes, but each only having one chromatid.
- *Spermatids* then differentiate into sperm (*spermatozoa*) Also present in the tubules are the *SERTOLI*, which support, nourish and regulate the spermatogenic cells.

**E) Sperm Parts:**



**i) Head: Contains 23 chromosomes**

**ii) Acrosome a type of Lysosome**

**-attached to nucleus**

**-contains hydrolytic enzymes which allow sperm to digest a hole in outer layer of egg so sperm can penetrate.**

**iii) Middle Piece: Contains mitochondria – for energy**

**iv) Tail: (Flagellum) 9 + 2 microtubule arrangement – Used for locomotion.**