1. Fill in the blanks:
(a) Humans reproduce---------- (asexually/sexually).
(b) Humans are---------- (oviparous, viviparous,ovoviviparous).
(c) Fertilization is---------- in humans (external/internal).
(d) Male and female gametes are----------(diploid/haploid).
(e) Zygote is---------- (diploid/haploid).
(f) The process of release of ovum from a mature follicle is called----------- .
(g) Ovulation is induced by a hormone called----------
(h) The fusion of male and female gametes is called---------- .
(i) Fertilization takes place in----------
(j) Zygote divides to form---------- which is implanted in uterus.
(k)The structure which provides vascular connection between foetus and uterus is called---------- .
Ans:
(a) sexually
(b) viviparous
(c) internal
(d) haploid
(e) diploid
(f) ovulation
(g) LH (Luteinizing hormone)
(h) fertilization
(i) ampullary-isthmic junction (fallopian tube)
(j) blastocyst
(k) placenta (Umbilical cord)

2. Draw a labelled diagram of male reproductive system.
Ans:

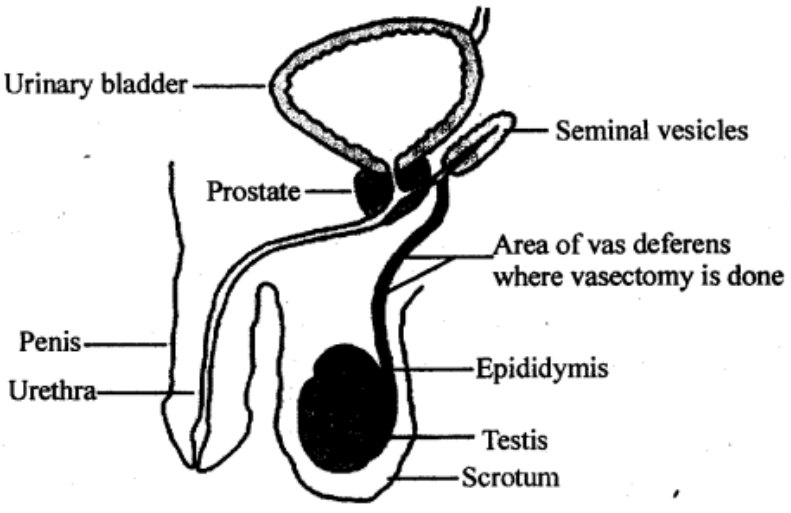


Fig. : Male reproductive system

3. Draw a labelled diagram of female reproductive system.
Ans:

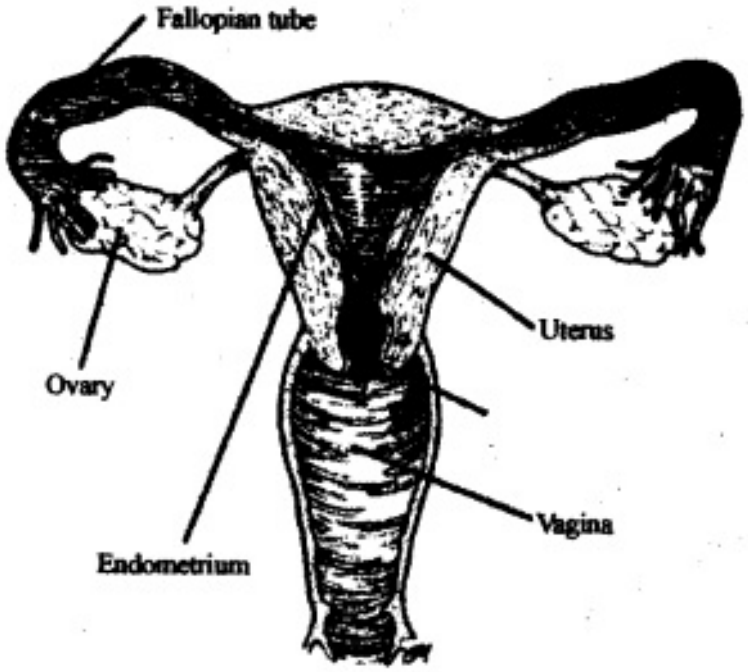


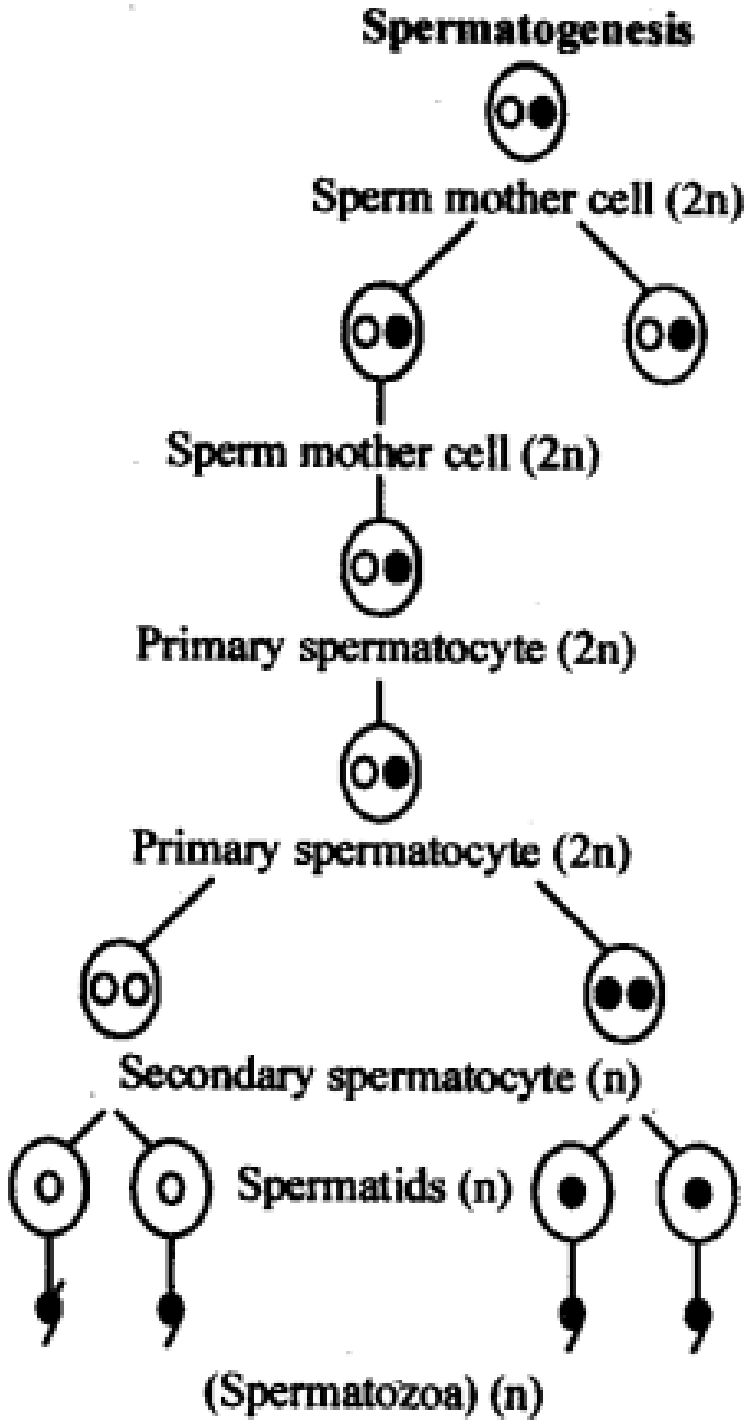
Fig. : Female reproductive system

4. Write two major functions each of testis and ovary.
Ans:
Testes - Testes are the primary sexual organs in male. Two major functions of testes are -
(i) Testosterone production from leydig cells.
(ii) Production of sperm cells in seminiferous tubules.
Ovary - Ovaries are the primary female sex organs. Two main functions of ovaries are
(i) Productions of female germ cells called eggs or oocytes.
(ii) Production of hormones - estrogens & progesterone which affect many of the female secondary sexual characters & reproductive functions.

5. Describe the structure of a seminiferous tubule.
Ans: The seminiferous tubule is a structural unit in the adult testis. The seminiferous tubules are situated in testicular lobules. Seminiferous tubule consists of two types of cells - Sertoli or supporting cells & spermatogenic cellsl Sertoli cells, are elongated and pyramidal & partially envelop the spermatogenic cells. The cells provide nourishment to the developing spermatogenic cells. Spermatogenic cells are stacked in 4-8 layers. These cells divide several times & differentiate to produce spermatozoa. Between seminiferous tubules lie the interstitial cells or leydig cells which produces testosterone hormone.

6. What is spermatogenesis? Briefly describe the process of spermatogenesis.
Ans: Spermatogenesis is the process of producing sperms with half the number of chromosomes (haploid) as somatic cells. It occurs in seminiferous tubules. Sperm production begins at puberty continues throughout life with several hundred million sperms be ing produced each day. Once sperm are formed they move into the epididymis, where they mature and are stored. During spermatogenesis one spermatogonium produces 4 sperms. Spermatogenesis completes through the following phases - multiplicative phase, growth phase, maturation phase & spermiogenesis. In multiplicative phase the sperm mother cells divide by mitosis & produce spermatogonia. The spermatogonia grow in size to form large primary spermatocytes by getting nourishment from sertoli cells in growth phase. Maturation phase

involves meiosis I in which primary spermatocytes divide to produce secondary spermatocyte and meiosis II which produces spermatids. Thus each primary spermatocyte gives rise to four haploid spermatids. Spermiogenesis or spermateliosis is process of formation of flagellated spermatozoa from spermatids. Spermiogenesis begins in the seminiferous tubules but usually completed in epididymis.



7. Name the hormones involved in regulation of spermatogenesis.
Ans. After sexual maturity, spermatogenesis starts due to the secretion of gonadotropin releasing hormone (GnRH) from the hypothalamus of brain. GnRH acts on pituitary gland and stimulates secretion of luteinizing hormone (LH) and follicle stimulating hormone (FSH). LH induce the Leydig's cells of the testis to produce male sex hormones called androgens. High level of androgens stimulate the process of spermatogenesis. FSH acts on the Sertoli cells and stimulates secretion of some factors which help in the

process of spermiogenesis.

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