Chapter Twenty Three

Reproduction

Introduction:

This is the process by which living things create more of their own kind. It also ensures the continuation of these species, and results in the production of new individuals to replace their parents who grow old and die. Unicellular organisms such as amoeba and paramecium reproduce by simply dividing into two, and each half then grows into an adult. In such a case, the nucleus and the cytoplasm divide into two equal halves and each half then grows into an adult. This process is called binary fission and involves only one organism. There are two types of reproduction and these are sexual production and asexual reproduction. Like plants, animals can produce asexually and sexually and in multi cellular organisms such as worms, insects and vertebrates, the usual method of reproduction is by sexual means. Human beings and most high plants and animals reproduce sexually, while most lower animals and plants reproduce asexually.

Sexual reproduction:

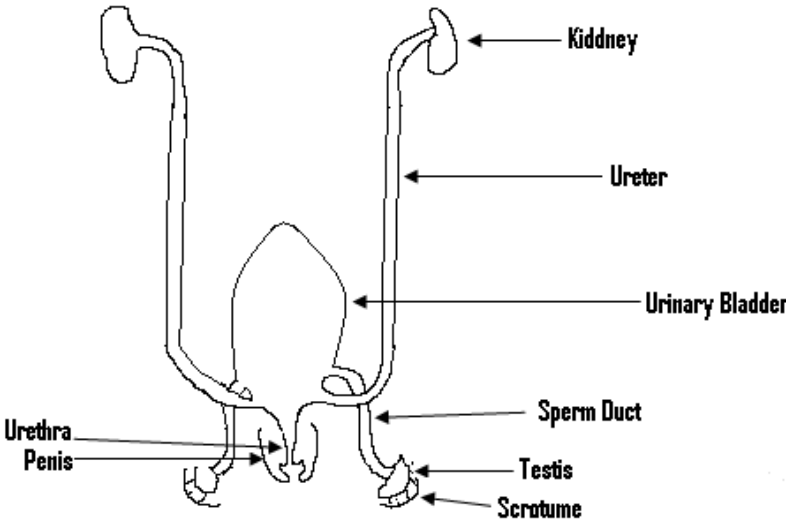
- This is the type of reproduction in which a new organism is formed, from the joining of two sex cells called gametes.
- This type of reproduction involves two separate individuals i.e. the male and the female, each of them producing reproductive cells or gametes.
- The male cell or gamete is called sperm or spermatozoa, while the female cell is called ovum (plural ova) or egg.
- While the sperms are produced by the testes, the eggs are produced by the ovaries.
- When a male and a female gametes unite, the sperm fertilizes the egg and for this to occur, the sperm must penetrate the egg i.e. fuse with it.
- The process in which a sperm fuses with an ovum is called fertilization and after the fertilization of the egg by the sperm, the fertilized egg changes into a new individual called the zygote.
- The zygote then grows into an embryo which develops into a fully formed human being.

- In man, an egg is usually fertilized at a time which results in the production of a single baby.
- But if two eggs are fertilized at the same time, then twins are produced.
- In order to bring about fertilization, a male and a female should come together to mate or copulate.
- This act ensures that sperms from the male are injected into the female.
- This allows the sperm to swim inside the female`s reproductive system, so as to get the chance to fertilize any egg which may be available.
- The zygote formed after fertilization grows into an embryo inside the body of the female.
- Each cell contains tiny structures called chromosomes, and the way and manner in which a new organism develops after fertilization, depends on the chemical information in the chromosomes.
- It is these chromosomes which causes a fertilized dog egg to grow into a dog.
- There are two kinds of fertilization and these are external and internal fertilization.
- In most fishes and amphibians, fertilization is external which means that the sperm fuses or combines with the egg outside the body of the female.
- Examples can be found in toad and frogs whereby the eggs which are laid outside the female's body, are sprayed with sperms for fertilization to occur.
- In reptiles and birds, fertilization is internal which means that the sperm fuses with the egg outside the female`s body.

Asexual Reproduction:

- This is the type of reproduction in which a new organism develops from parts of, or from parts produced by only one parent.
- Asexual reproduction may take any of the following forms or processes listed next:
  (a) Some animals and plants simply split into two and each half then grows into an adult.
  (b) Certain organisms give off parts of their bodies which develop into new organisms.
  (c) Some simple animals and plants produce tiny structures called spores that grow into adult organisms.

The Male Reproductive System:



- The male reproductive system or the male sex organs or genitals are mostly outside his body.
- It consists of the penis, the testes, the scrotum, the urethra and the urinary bladder.

- The penis is a finger shaped organ found between the legs of the male.
- This structure ensures that sperms produced by the testes get into the vagina.
- It consists of tissues, muscles and blood vessels.
- During mating the penis becomes erect when blood rushes to occupy the spaces within the spongy tissue.
- Behind the penis hangs a small sack called the scrotum or the scrotal sacs, which contains the sex organ called the testicles or the testes.
- The urethra which serves as a passage for both urine and sperms, passes through the penis.
- Sperms are produced and stored by the testes.
- A whitish fluid called the semen (seminal fluid) is produced by the prostate gland and the seminal vesicles.
- The seminal fluid is important for the following reason:
  (a) Sperms are mixed with it and stored.
  (b) It serves as a medium in which the sperm can swim.
  (c) It contains nutrients which make the sperms active.

(d) The fluid has an alkaline nature which neutralizes the acid medium of the female sexual organ.

- The semen which contains the sperm is released through the urethra.
- Urine from the bladder and sperm from the testicles are both discharged from the body through the penis, but at different times.
- A hormone called testosterone controls sperm production, and is also responsible for the development of secondary sex characters found in male.
- This hormone is produced by the testes when the male is considered matured for sex, and makes the male reproductive system increase in size from the time of puberty.
- At puberty a lot of changes called the male secondary sexual characteristics occur in the male.

Male sexual characteristics:

(1) Deep voice. (2)Enlargement of the penis.

3) Appearance of hair in the armpit and pubic area.

4) Appearance of facial hair such as moustache.

Functions of the parts of the male reproductive organ:

Testes: They produce the sperm.

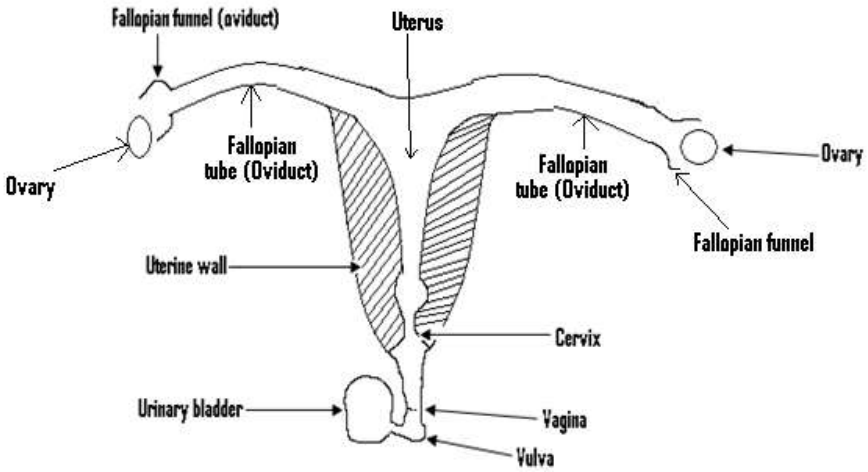
Epididymis: It temporarily stores sperms and produces secretions that keep the sperm alive.

Sperm duct (Vas deference): It is the passage, through which sperms from the epididymis pass.

Urethra: It serves as the passage way for both semen and urine.

Penis: It is used to release semen into the vagina.

The female Reproductive organ



- All the female reproductive organs are inside her body.
- It consists of a pair of ovaries which produce and store the eggs.
- Lying very close to each ovary is a funnel shaped structure, called the fallopian funnel which leads into the fallopian tube or the oviduct.
- The ovaries normally release an egg about every 28 days, and this process in which the egg is released is called ovulation.
- The egg released is first received by the fallopian funnel, and then passed on into the fallopian tube or oviduct.
- There are two fallopian tubes or oviducts and these combine to form the uterus or the womb, which leads into the vagina.
- The cervix is the lower narrower end of the uterus which leads into the vagina.
- Each fallopian tube is associated with only one ovary.
- The urethra leads from the urinary bladder to the outside.
- In the female human being, the urethra and the vagina open to the outside by separate openings.
- The sensitive clitoris lies above the vagina.

The functions of the various parts of the female reproductive organ:

(1) **The ovaries:** They produce the female sex cell or the ova.

(2) **Oviduct (fallopian tube):** It is the place where fertilization occurs.

(3) **Uterus (womb): It is the place where the embryo develops.**

(4) **Cervix:** It serves as a link between the womb and the vagina.