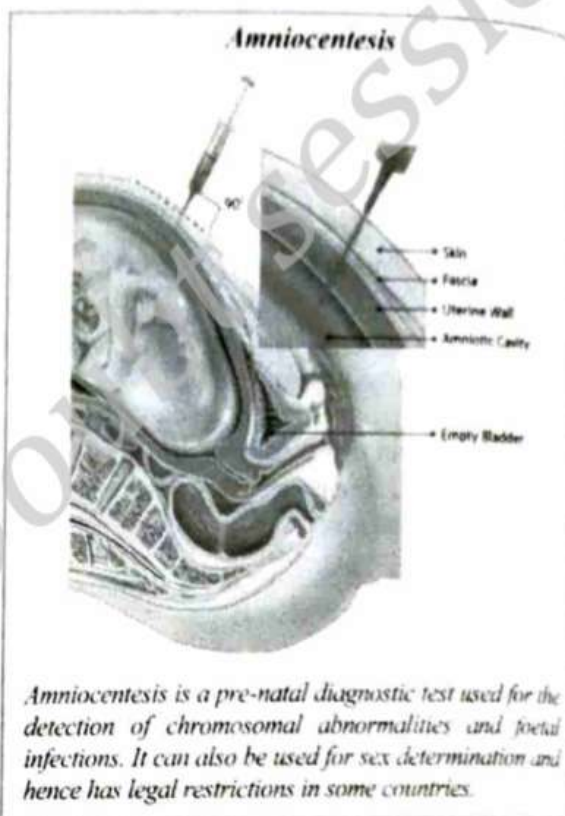
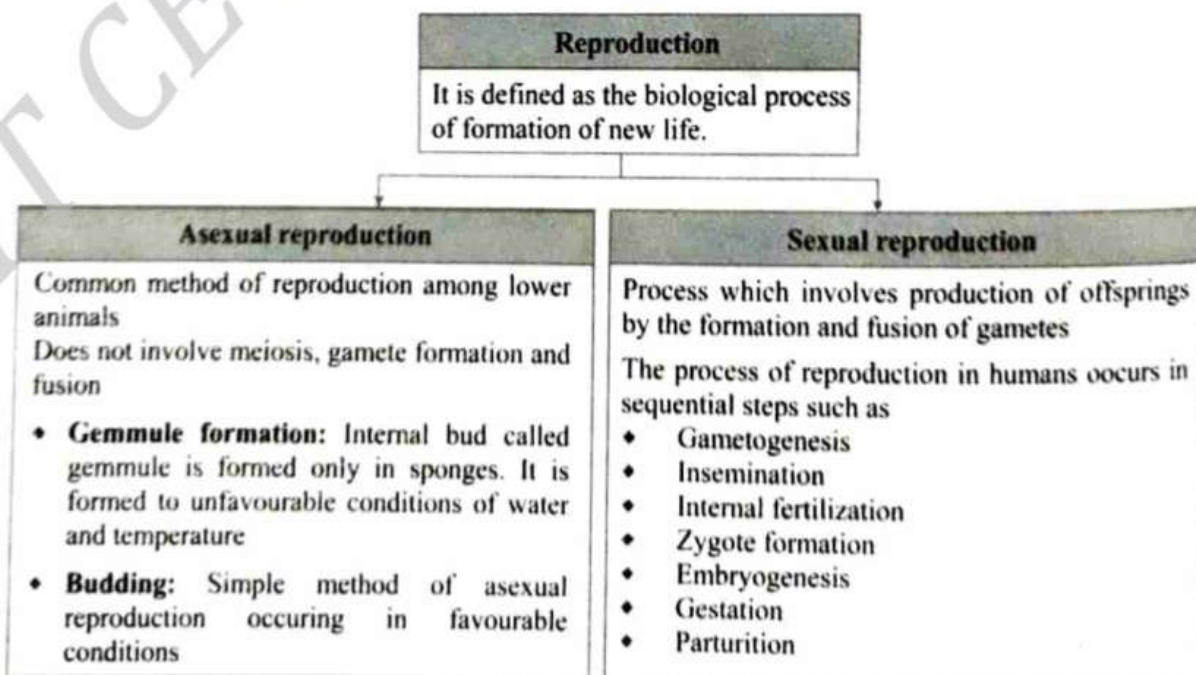


Subtopics

- 2.0 Introduction
- 2.1 Asexual Reproduction in Animals
- 2.2 Sexual Reproduction in Animals
- 2.3 Menstrual Cycle (Ovarian Cycle)
- 2.4 Gametogenesis
- 2.5 Fertilization/ Syngamy
- 2.6 Embryonic development
- 2.7 Pregnancy
- 2.8 Placenta
- 2.9 Parturition
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- 2.11 Reproductive Health
- 2.12 Birth Control
- 2.13 Sexually Transmitted Diseases (STDs)
- 2.14 Infertility



Quick Review



Menstrual cycle

- Characteristic feature of primates including humans
- Involves cyclic changes in the ovary and female reproductive tract, mainly in the uterus.
- It is a 28 day cycle. The cycle is divided into 4 phases of Menstrual cycle:
- **Menstrual phase** → Average 3 to 7 days; **Proliferative (Follicular)** → 5th - 13th day
- **Ovulatory** → 14th day; **Secretory (Luteal)** → 15th - 28th day

HUMAN REPRODUCTION

Male Reproductive System

- **Testis** → (Primary sex organ) → Produce sperms and secrete testosterone.
- **Penis** → Copulatory organ.
- **Accessory ducts** → Rete testis, Vasa efferentia, Epididymis, Vasa deferentia.
- **Accessory glands** → Ejaculatory ducts, Seminal vesicles, Prostate gland, Cowper's glands.

Female Reproductive System

- **Ovaries** - (Primary sex organ) → Produce ova and secrete estrogen and progesterone
- **Oviducts** - Fallopian tubes (Site of fertilization)
- **Uterus** (site of implantation of embryo); **Vagina** (Copulatory as well as birth canal).
- **External genitalia** → Labia majora, labia minora, clitoris, mons pubis, hymen, vestibule.
- **Accessory glands** → Vestibular (Bartholin's) glands, Mammary glands,

Spermatogenesis

Sperm

Oogenesis

Ovum

Fertilization

- It is the fusion of haploid male gamete (Spermatozoa) and haploid female gamete (ovum) to form diploid zygote.
- Takes place in ampulla of fallopian tube.
- It restores diploidy in zygote (2n).
- Stimulates zygote to undergo further development.
- Occurs in four steps:**
 - Approach of sperm to ovum.
 - Penetration of sperm into ovum.
 - Activation of ovum.
 - Fusion of gametic nuclei.

Embryonic

- **Cleavage** → Early mitotic divisions of zygote into hollow multicellular blastula.
- **Blastulation** → Process of formation of the hollow and multicellular blastocyst.
- **Implantation** → Attachment of blastocyst on the endometrium of uterus.
- **Gastrulation** → Process of formation of gastrula from the blastocyst

Pregnancy

- It is the condition of carrying one or more embryos in the uterus.
- Lasts for about 266 days from fertilization or 280 days from LMP. **Three trimesters of pregnancy** (3 months each).
- **First** → Foetus 5 cm long
- **Second** → Foetus 30 cm long
- **Third (Final)** → Foetus 50 cm long; 3 - 4 kgs

Parturition

- It is the process of giving birth to a baby.
- Induced by oxytocin and relaxin.
- 3 stages of Parturition:**
 - **First (Dilation)** → Lasts upto few hours
 - **Second (Expulsion)** → 20 mins - 1 hour
 - **Third (Placental)** → 10 - 45 mins

Lactation

- Secretion of milk from mammary glands after pregnancy.
- **Colostrum** is milk produced during the initial few days of lactation.
- It is rich in proteins, lactose and contains mother's antibodies which provides passive immunity to the new born baby.

