

REPRODUCTION

Gist of the Lesson

- 1) **Reproduction:** process by which living organism produce new individual of their own kind.
- 2) **Creation of DNA copy:** when the cell divides into two, each new cell gets a copy of each DNA or chromosomes.
- 3) **Importance of Variation:** variations are created by DNA copying mechanism during sexual reproduction.
- 4) **Asexual modes of Reproduction:**
 - a) Fission—binary & multiple fission
 - b) Fragmentation
 - c) Regeneration
 - d) Budding
 - e) Vegetative propagation
 - f) Spore formation
- 5) **Sexual Reproduction**
 - a) In flowering plant
 - b) In human beings
- 6) **Pollination:** self and cross pollination
- 7) **Fertilization:** male and female germ cell fuses to form zygote.
- 8) **Puberty:** The age, when reproductive organs become functional, (in female 10-12 years, in male 13-14 years).
- 9) **Male reproductive System** in human beings.
- 10) **Female reproductive System** in human beings.
- 11) **Reproductive Health**
 - a) To have awareness about STDs, (sexually transmitted disease).
 - b) Some common STDs are gonorrhoea, syphilis & HIV-AIDS.
- 12) **Contraceptive Methods:** to avoid pregnancy-
 - a) Barrier method
 - b) Chemical methods
 - c) Surgical methods

One Mark Questions (One word or one sentence)

1. Give the respective scientific terms used for studying?

- (i) The mechanism by which variations are created and inherited and
(ii) The development of new type of organisms from the existing ones.

A. (i) Heredity (ii) Fission.

2. Define Puberty?

A. The age at which the reproductive organs of male and female become functional and the gonads start producing gametes or the males and females become sexually mature is called puberty.

3. Name two sexually transmitted diseases?

A.

- AIDS (Acquired Immunodeficiency Syndrome)
- Syphilis
- Gonorrhoea (any two)

4. Name the body part in human female where fertilization occurs?

A. Fallopian tube (Oviduct).

Two Marks Questions (30 words)

1. Variations are important for the survival of species over time. Justify this statement with reasons?

A. Variations help the individuals to survive even after the drastic change occurs in nature. These changes may be in the niche, temperature, salinity or water levels etc.

2. Differentiate between binary and multiple fissions for reproduction. Give example of each?

A.

Binary Fission	Multiple Fission
(a) Parent cell is divided into two small, nearly identical. Equal sized daughter cells. (b) Nuclear division is followed by appearance of a constriction in the cell membrane.	(a) Parent cell is divided into several small, nearly equal sized daughter individuals. (b) The nucleus of the parent cell divides several times into many daughter nuclei.
Example: Amoeba, Paramecium, Leishmania etc.	Example: Plasmodium.

3. Fallen leaves of Bryophyllum on the ground produce new plants whereas the leaves of rose do not. Explain this difference between the two plants?

A. In Bryophyllum, vegetative propagation occurs through leaves where buds occur while the rose leaves do not have buds. Thus, its fallen leaves do not produce new plants.

4. Differentiate between asexual and sexual modes of reproduction. Give one example of each?

A.

Asexual Reproduction	Sexual Reproduction
(i) Only one (single) parent is involved to give rise to the new organism.	(i) Two parents of opposite sexes are involved to give rise to the new organism.
(ii) Formation or fusion of gametes does not take place. E.g., Amoeba.	(ii) The fusion of two gametes male and female) which leads to fertilisation takes place. E.g., human beings.

5. Which parts/organs of the human reproductive system performs the following functions?

- (a) Production of fluid to provide a medium for sperms.**
- (b) Secrete the hormone that regulates formation of sperms.**
- (c) Provides nutrition from mother's blood to embryo.**
- (d) Carries egg from ovaries to the uterus.**

A. (a) Seminal vesicles, prostate gland and Cowper's glands.
 (b) Testes
 (c) Placenta
 (d) Fallopian tube or oviduct.

6. A tube like structure connects the mother to the foetus. What is this tissue called? Mention its function?

A. Placenta.

Functions: The foetus gets nutrients, water, oxygen, minerals and vitamins etc., from maternal blood via placenta.

7. (i) What happens to the pollen when it is transferred on the stigma?

(ii) What happens to ovary and ovule after fertilization?

- A. (i) When the pollen is transferred on the stigma, it happens to reach the female germ-cells in the ovary and forms zygote which is capable of growing into a new plant.
(ii) After fertilization, the ovary grows rapidly and ripens to form a fruit.
(iii) After fertilization, the ovule develops a tough coat and is gradually converted into a seed.

8. (a) Which organ is responsible for implantation of zygote?

(b) State two functions of fallopian tubes?

- A. (a) Uterus
(b) (i) Fallopian tube transfers the ova/egg from the ovary to the uterus.
(ii) Fallopian tube is the site of fertilization.

9. Mention the specific plant part where formation of seeds occurs. Briefly describe various parts of seed?

- A. • Ovary.
• A typical seed has three parts.
(i) Plumule which is future shoot.
(ii) Cotyledon, which stores food.
(iii) Radicle, which is future root.

10. Differentiate between vas deferens and fallopian tube?

A.

Vas Deferens	Fallopian Tube
Two vas deferens from two testes transport sperm to penis in male.	Two fallopian tubes join to the uterus in females. Ovum released by ovary enters the fallopian tube where fertilization occurs.

11. (a) Specify the events which occur in the reproductive system of a human female:

- (i) If egg is fertilised (ii) If egg is not fertilised**

(b) Mention the changes that take place in uterus in both the above events.

- A. (a) (i) Pregnancy, (ii) Menstruation.
(b) In first case, inner lining of uterus becomes thick and spongy to nourish the embryo. In second case, lining breaks and comes out through vagina as blood and mucous.

Three Marks Questions (50 words)

1. (a) What is DNA ? How does it express itself?

(b) What is the importance of DNA copying in reproduction?

- A. (a) DNA is the genetic material found in the nucleus of all eukaryotic cells. At the time of reproduction it replicates and makes another copy of itself.
(b) (i) It helps in maintaining the identity of the species.
(ii) It introduces variations among the individuals of a species.
(iii) Variation during reproduction is the basis for evolution.

2. (a) What is the location of the following?

(i) DNA in a cell (ii) Gene

(b) Expand DNA

- A. (a) (i) In the nucleus of cell, (ii) Located on the chromosomes.
(b) Deoxyribonucleic Acid.

3. List any two modes of asexual reproduction in animals. Under which mode of reproduction is vegetative propagation placed and why? List two advantages of vegetative propagation? (Or)

List two reasons for growing plant by vegetative propagation?

- A. Two modes of asexual reproduction in animals are:
(a) Regeneration
(b) Budding
- Vegetative propagation is placed under asexual mode of reproduction because only single parent is involved in reproduction
 - Advantages of vegetative propagation
- (a) By this method of propagation, the purity of variety is maintained.
(b) This method can be used to propagate the plants which have lost their capacity to produce seeds or produce non-viable seeds.

4. Name the type of asexual reproduction demonstrated by the following organisms

- (a) Amoeba (b) Rhizopus (c) Planaria**
(d) Plasmodium (e) Spirogyra (f) Bryophyllum

- A. (a) Amoeba: Binary fission (b) Rhizopus Spore formation
(c) Planaria Regeneration (d) Plasmodium: Multiple fission
(e) Spirogyra Fragmentation
(f) Bryophyllum Vegetative propagation through 'leaf-buds'.

5. Explain the terms:

- (i) Implantation**
(ii) Placenta
(iii) What is the average duration of human pregnancy?

- A. (i) Implantation: The close attachment of the embryo to the uterine wall is called implantation.
(ii) Placenta: The special tissues containing on the embryo's side of the tissue and blood spaces on mother's side. It serves as nutritive, respiratory and excretory organ of the fetus.
(iii) 280 days (approximately nine months).

6. (a) Write the names of those parts of a flower which serve the same function as the following do in the animals:

- (i) Testis, (ii) Sperm, (iii) Ovary, (iv) Egg.**
(b) State the function of flowers in the flowering plants.

- A. (i) Testis : Stamen
(ii) Sperm : Pollen grain
(iii) Ovary : Ovary
(iv) Egg : Egg cell (Ovum)
(b) Flower is the site of reproduction in such plants.

7. (a) Explain any two consequences of unsafe sex.

- (b) List any two surgical methods for contraception.**
(c) Why has the government banned pre-natal sex determination?

- A. (a) (i) Unsafe sex may lead to unwanted pregnancy.
(ii) It may also cause STDs (Sexually Transmitted Diseases).
(b) (i) Vasectomy in males.
(ii) Tubectomy in females.

(c) The government has banned pre-natal sex determination due to its misuse by people. It has resulted in increased incidences of sex-selective abortion of female fetuses (female foeticide).

8. Write any one advantage and one disadvantage of self-pollination and cross-pollination? In the context of development of new plants, which of them is better and why?

A. Self-pollination:

Advantage: It helps to preserve the parental characters.

Disadvantage: Genetic defects of a breed cannot be removed.

Cross-pollination:

Advantage: It results in healthier off springs.

Disadvantage: Plants have to depend on external agencies for pollination.

Cross-pollination is much better, as it results in evolution and improved vigour in plants.

Five Marks Questions (70 words)

1. Describe any three methods of asexual reproduction in living organisms. List four advantages of vegetative propagation?

A. • Methods of asexual reproduction

(i) Fission: Unicellular organisms like Amoeba, Leishmania, Plasmodium etc. reproduce by the process of fission in which a parent cell divides into two or more daughter cells.

(ii) Fragmentation: Multicellular organisms like Spirogyra, breaks up into smaller pieces/fragments upon maturation and each fragment gives rise to a new organism, This process is known as fragmentation.

(iii) Regeneration: Fully differentiated organisms like Hydra, Planaria etc. have ability to give rise to new individual organisms from their body parts, when they are broken up into many pieces, each piece grows into a complete organism. This process is known as regeneration.

• Advantages of vegetative propagation:

(i) Plants raised by vegetative propagation can bear flowers and fruits earlier than those produced from seeds.

(ii) It makes possible for the plants like banana, orange, rose and jasmine that have lost the capacity to produce seeds, to propagate.

(iii) All plants produced by vegetative propagation are genetically similar enough to the parent plant to have all its characteristics.

(iv) It is cheaper, easier and comparatively faster method of propagation in plants.

2. (a) Name the human male reproductive organ that produces sperms and also secretes hormones. Write the functions of the hormone secreted.
(b) Name the parts of the human female reproductive system where (i) Fertilization and (ii) implantation occur respectively. Explain how the embryo gets nutrition inside the mother's body.

- A. (a) • Testes (Singular Testis)
• It produces the male hormone called testosterone.

Functions of testosterone:

- (i) Testosterone helps to bring about the secondary sexual characters during puberty.
(ii) It helps in the formation of male gametes (sperms).
(iii) It maintains the sexual maturity throughout adult life.
(b) (i) Fertilization takes place in the fallopian tube (oviduct).
(ii) Implantation occurs uterus.

The embryo gets its nutrition through special tissues called placenta. It is a disc which is embedded in the uterine wall. It provides a large surface area in the form of villi for glucose and oxygen to pass from mother to embryo.

3. (a) Name any two sexually transmitted diseases each caused by (i) Virus (ii) Bacteria
(b) Suggest a method to prevent these diseases.
(c) Explain how surgical methods for avoiding pregnancy work in males and females.

- A. (a) (i) **Virus** : (A) HIV-AIDS (Acquired Immunodeficiency Syndrome)
(B) Warts

(ii) **Bacteria**: (A) Gonorrhoea, (B) Syphilis.

- (b) (i) Using condom during intercourse.
(ii) Avoiding sex with unknown partners.

(c) (i) **Vasectomy (in Males)**: In this method involves the removal of the cut ends are tied with threads, It prevents the sperms to come out.

(ii) **Tubectomy (in Females)**: In this method, the small portion of oviducts (fallopian tubes) on both sides is removed and the cut ends are tied with threads. It prevents the entry of egg or ovum to fallopian tube.

//o0o\\