

## HOW DO ORGANISMS REPRODUCE

- Reproduction is the biological process by which living organisms produce new individuals (Offspring) similar to themselves.
- It ensures continuity species generation of generation.

### Content:

Reproduction in animals and plants (asexual and sexual), Reproductive health - need and methods of family planning, Safe sex vs HIV/AIDS, Child bearing and women's health

## TYPES OF REPRODUCTION

- 1- Asexual reproduction
- 2- Sexual reproduction

Asexual reproduction	Sexual reproduction
In this single parent is involved.	In this two parents are involved.
It does not involve fusion of gametes	Fusion of gamete is involved.
There is no meiosis	Meiosis occurs
No variation in offspring	variation occur

## ASEXUAL REPRODUCTION AND VEGETATIVE REPRODUCTION

### **Fission**

In this organism divide two or more equal part and each develops into identical new individuals. Ex. Amoeba

### **Regeneration**

If an individual's body is cut into several pieces, each of its parts regrows into a new individual. Ex- Planaria

### **Budding**

In this new organism develops on the bud (outgrowth on the parent body). The new organism remains attached to the parent body till it gets matures. Ex- Hydra, Yeast

### **Adventitious Bud**

Small buds in the notches of the leaf. These have the ability to grow into new individuals. Ex – Bryophyllum

### **Spore formation**

Spores are propagules produced in sporangia and germinate to produce new individuals. Rg. Rhizopus (bread mould)

## SEXUAL REPRODUCTION

The sexual life cycle can be grouped into –

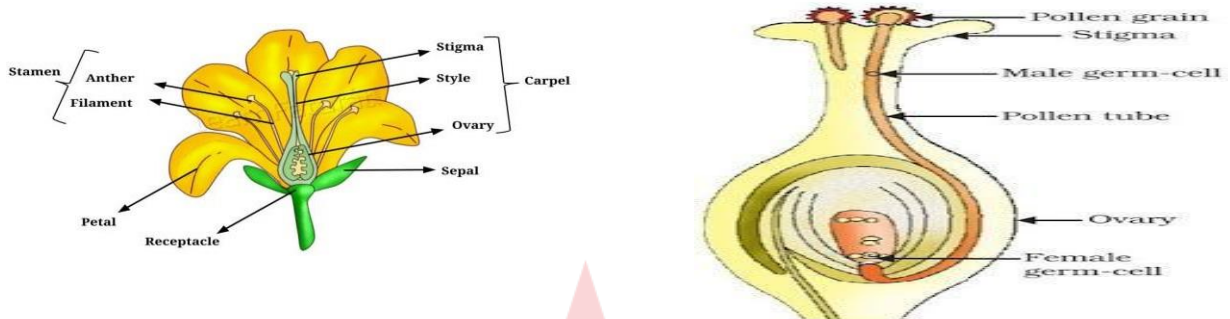
- i- Pre-reproductive phase- development to attain sexual maturity (puberty)
- ii- Reproductive phase- sexually mature, able to reproduce, able to produce fertile gametes
- iii- Post reproductive phase- after fertilization, development of embryo into new individual

## SEXUAL REPRODUCTION IN FLOWERING PLANTS

- Reproductive part of plant is flower. Flower consists sepals, petals, stamens and carpels.
- Stamen and carpel contain anther and ovary respectively.
- Anther produces male gamete pollen and ovary contains female gamete egg.
- After pollination pollen fuses with egg to form zygote.



- Zygote develops in embryo and within ovule.
- Ovule develops into seed that contains future plant and ovary ripens in fruit.



## REPRODUCTION IN HUMAN BEINGS

### Male reproductive system –

- It consists of one pair of testes where sperm formation takes place.
- Testes also secrete hormones like testosterone.
- Testosterone brings about changes in appearance of boys at the time of puberty.
- Sperm is delivered through the vas deferens where secretions of the prostate gland and seminal vesicles add their secretions. These secretions help in transportation and provide nutrition to sperm.

### Female reproductive system

- It consists of mainly a pair of ovaries and a uterus.
- On puberty the ovary starts producing eggs and releases one egg each month.

### Fertilization

- Fertilization is a fusion of sperm and egg. It takes place in the fallopian tube. The fertilized egg is called a zygote which develops into an embryo.
- Uterus is for implantation purposes which hold the developing embryo in its layer through the placenta and umbilical cord.
- When egg is not fertilized the inner lining of uterus breaks and comes out through the vagina as blood and mucus (menses). This cycle repeats every month and is called menstrual cycle.

## REPRODUCTIVE HEALTH

**STDs (Sexually transmitted diseases)**- Spread from infected person to healthy person due to unprotected sex. E.g.- HIV-AIDS, Gonorrhoea, Syphilis, and Warts.

### Population control methods

- Mechanical barrier- Condom
- Hormonal methods- Pills
- Chemical method- Cut, Loops

- Surgical method- Vasectomy and Tubectomy

## IMPORTANT QUESTIONS

### Very Short Answer Type Questions

1- Amoeba shows which type of asexual reproduction-

- a- Binary fission      b- Spore formation      c- Budding      d- All of these

Ans: a

2- The nature of DNA molecule is-

- a- Positively charged      b- Negatively charged      c-Neutral      d- Either a or b

Ans: b

3- Which of the following is not a pollinating agent-

- a- Human  
b- Lion  
c- Leopard  
d- All are a pollinating agent

Ans: d

4- Sexually reproducing are different form asexually reproducing organisms in-

- a- Mitosis  
b- Meiosis  
c- Offsprings  
d- All of these

Ans: b

5- If a human male produces sperm and a human female produces an egg, what will be the product of anther-

- a- Ovule  
b- Egg  
c- Pollen  
d- Ovary

Ans: c

6- Write the name and function of A and B



**Ans:** A- Ovary- by oogenesis produces eggs  
B- Fallopian tube: site of fertilization

7- What are testes? List two functions performed by testes in human beings.

Ans: Testes are male gonad.

By process of spermatogenesis, the testes produce sperms.

It also helps in the production of male hormone androgens.



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**8- Mention modes of reproduction in Leishmania, Rhizopus, Planaria, Plasmodium and hydra.**

Ans: Leishmania- Binary fission, Rhizopus- Spore, Planaria- Regeneration, Hydra- Budding

**9- When a cell reproduces, what happens to its DNA?**

Ans: When a cell reproduces, DNA replication occurs which forms two similar copies of DNA

**10- What is pollination? Give an example of any two pollinating agents.**

Ans: The transfer of pollen from the anther to the stigma of a flower is known as pollination. Examples of pollinating agents: Insects, Wind, Water

**Short Answer Type Questions**

**11- What are sexually transmitted diseases? Give any three examples.**

Ans: are infections transmitted from an infected person to an uninfected person through sexual contact. Example- HIV- AIDS, Syphilis, Genital wart

**12- Differentiate asexual and sexual mode of reproduction. Which one shows variation and why?**

Ans:

Asexual reproduction	Sexual reproduction
In this single parent is involved.	In this two parents are involved.
It does not involve fusion of gametes	Fusion of gamete is involved.
There is no meiosis	Meiosis occur
No variation in Offsprings	variation occur

- Genetic material from both the parents mixed by fertilization.
- Hence Offsprings get both the information and produce mixed characters which are not exactly the same as only mother or father.

**13- Explain vegetative propagation with the help of two examples. List two advantages of vegetative propagation.**

Ans: Vegetative reproduction is any form of asexual reproduction occurring in plants in which a new plant grows from vegetative propagules like-cutting, buds, eyes etc.

Importance

- Vegetative propagation takes less time
- No variation occur
- No requirement of fusion of gametes
- Can be done artificially in garden

**14- Write the role of the followings-**

- I. Placenta II- Ovary III- Uterine wall IV-Egg

Ans:

- I. Placenta: provides oxygen and nutrients to a growing baby. It also removes waste products from the baby's blood.
- II. Ovary: produce egg by process of ovulation
- III. Uterine wall: implantation, formation of placenta and umbilical cord, helps in contraction

during child birth

IV. Egg fuses with sperm to form zygote

**15- What could be the reasons for adopting contraceptive methods?**

Ans: To prevent -

Unwanted pregnancy, STDs (sexually transmitted diseases)

**Long Answer Type Questions**

**16- a-How do Plasmodium and Leishmania reproduce? Write one difference in their mode of reproduction.**

**b- Explain the formation of buds in hydra.**

Ans: a- Plasmodium and Leishmania are both single-celled parasites that are able to reproduce asexually. Plasmodium reproduces through a process known as schizogony, in which a single cell is divided into multiple daughter cells. These daughter cells then undergo further division, creating more daughter cells, until a certain number of parasites is reached. Leishmania, on the other hand, reproduces through a process known as binary fission, in which a single cell divides into two daughter cells. The main difference between the two is that in schizogony, multiple daughter cells are produced per division, while in binary fission only two daughter cells are produced.

b- Hydra create buds by a process known as budding. During this process, the parent hydra will form an outgrowth, or bud, from the body wall of its column. This bud is an extension of the hydra's body, and contains some of the same genetic material as the parent. The bud will then grow into a new hydra, which can eventually become independent from the parent.

**17- What are STDs? Give five examples of it. Write the methods to prevent the STDs.**

Ans: Sexually transmitted diseases (STDs) are illnesses that are passed from one person to another through intimate contact. STDs can be caused by bacteria, viruses, or parasites. Some STDs, such as HIV, cannot be cured and can only be managed through treatment.

Five examples of STDs include chlamydia, gonorrhea, syphilis, herpes, and HIV. Chlamydia is a bacterial infection that is usually transmitted through unprotected sex. Gonorrhea is a bacterial infection that can be spread through contact with the genitals, anus, or throat. Syphilis is a bacterial infection that is usually spread through sexual contact. Herpes is a viral infection that can be spread through contact with the genitals, anus, or mouth. HIV is a virus that can be spread through contact with infected body fluids, such as blood, semen, or breast milk.

The best way to prevent STDs is to practice safe sex. This includes using condoms every time you have sex, avoiding sex with multiple partners, and getting tested for STDs regularly. It's also important to get vaccinated for certain STDs, such as hepatitis B. Additionally, it's important to avoid sharing needles and to practice proper hygiene.

**18- List five advantages of vegetative propagation.**

Ans: 1. Vegetative propagation is a cost-effective and efficient way to propagate a variety of plants. It does not require any special equipment, and the cost of propagating plants is much lower than that of purchasing new plants.

2. It is a quick and easy way to propagate a plant species. It takes much less time to propagate a plant through vegetative propagation than it does to grow a plant from a seed.

3. It allows for the propagation of plants that do not reproduce through seeds, such as many fruit trees.

4. It is a reliable way to propagate a plant. The plants that are propagated through vegetative propagation are clones of the parent plant, so they will have the same characteristics as the parent plant.

5. It allows for the propagation of plants that may be difficult to propagate through seeds, such as many ornamental and medicinal plants.



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