# UDAAN

## 2025

# How Do organisms Reproduce ?

Biology

Lecture - 04

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# Topics to be covered

1. Vegetative propagation
2. Basics of sexual Reproduction
3. MCQ practice and Homework

# Question of the Day

Which human body part can regenerate itself?


Question

Choose correct statement

A Tentacles of yeast help in capturing of food.

B Spirogyra reproduces by breaking itself into smaller bits

C Malarial parasite shows ~~binary~~ fission

D Spores are produced inside sporangia

Question

#H.Q

Budding is observed in

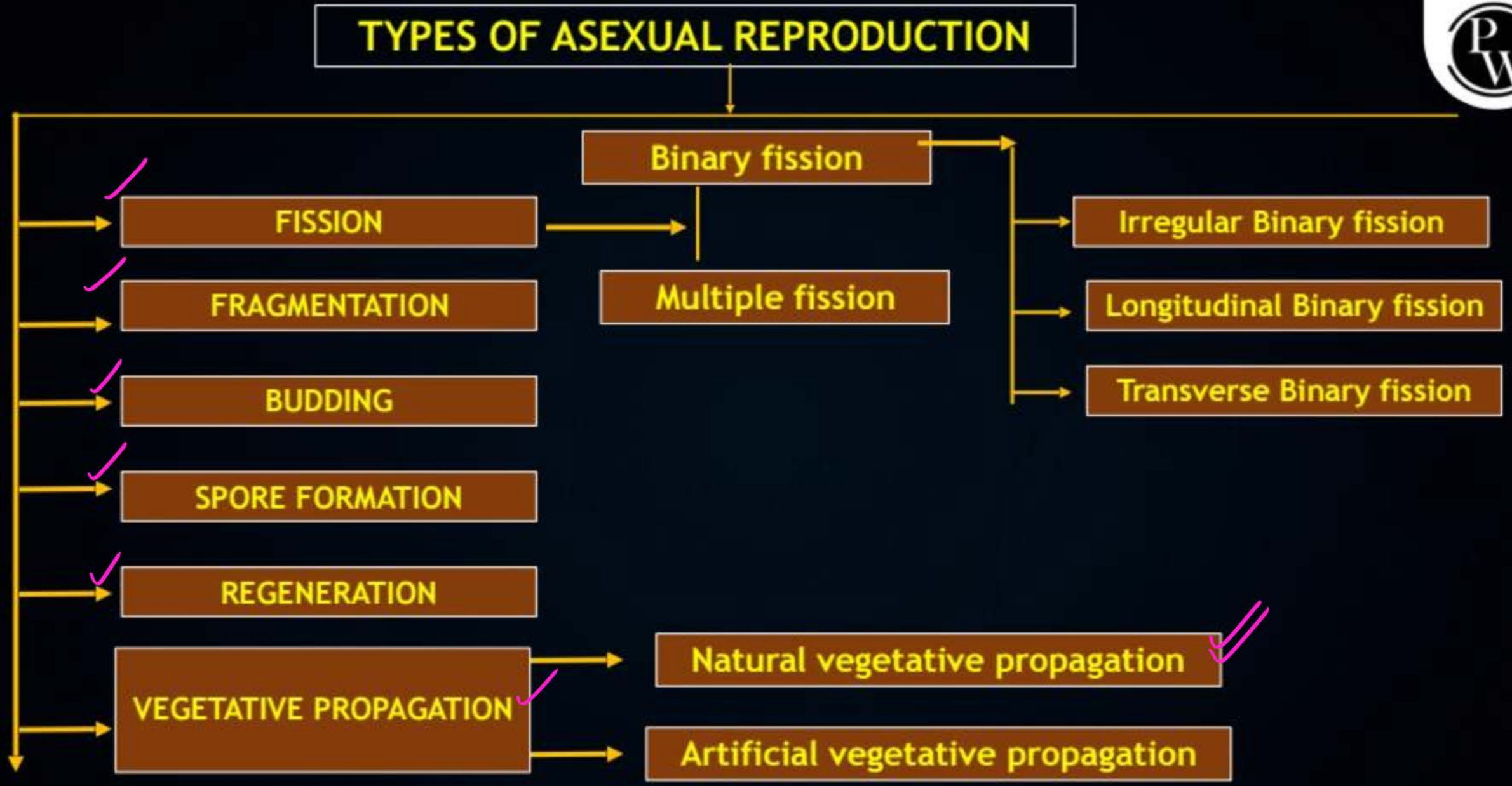
A Amoeba → Binary fission

B Yeast

C Hydra

→ Budding

D Both B and C

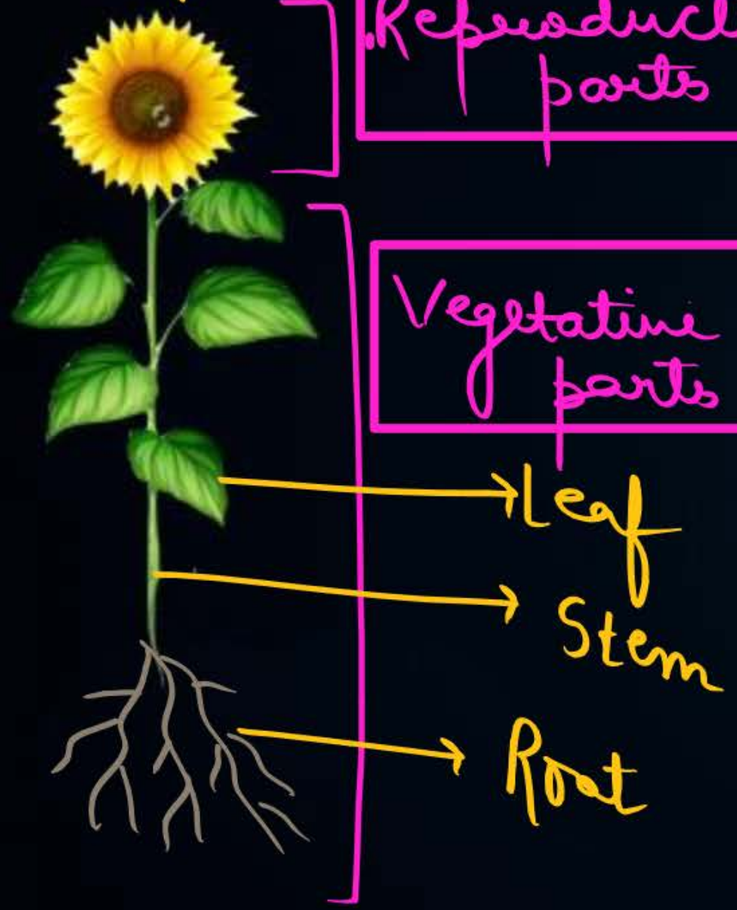

TYPES OF ASEXUAL REPRODUCTION
FISSION
Binary fission
Irregular Binary fission
Longitudinal Binary fission
Transverse Binary fission
Multiple fission
FRAGMENTATION
BUDDING
SPORE FORMATION
REGENERATION
VEGETATIVE PROPAGATION
Natural vegetative propagation
Artificial vegetative propagation

# Vegetative propagation

A type of asexual reproduction in which plants reproduces with the help of Vegetative parts

- Stem
- Root
- Leaf

# Parts of a plant



Flower

Reproductive parts → part responsible for Sexual reproduction.

Vegetative parts → parts not involved in Sexual reproduction.

Leaf

Stem

Root

Question

Which of the following part is not involved in vegetative propagation ?

A Stem

B Root

C Leaf

D Flower

# Vegetative propagation

## Natural vegetative propagation

- Natural development of a new plant without Human effort or intervention
- Naturally occurs in plants

## Artificial vegetative propagation

- Development of a new plant with the help of Human effort or intervention
- Occurs artificially under the influence of human beings

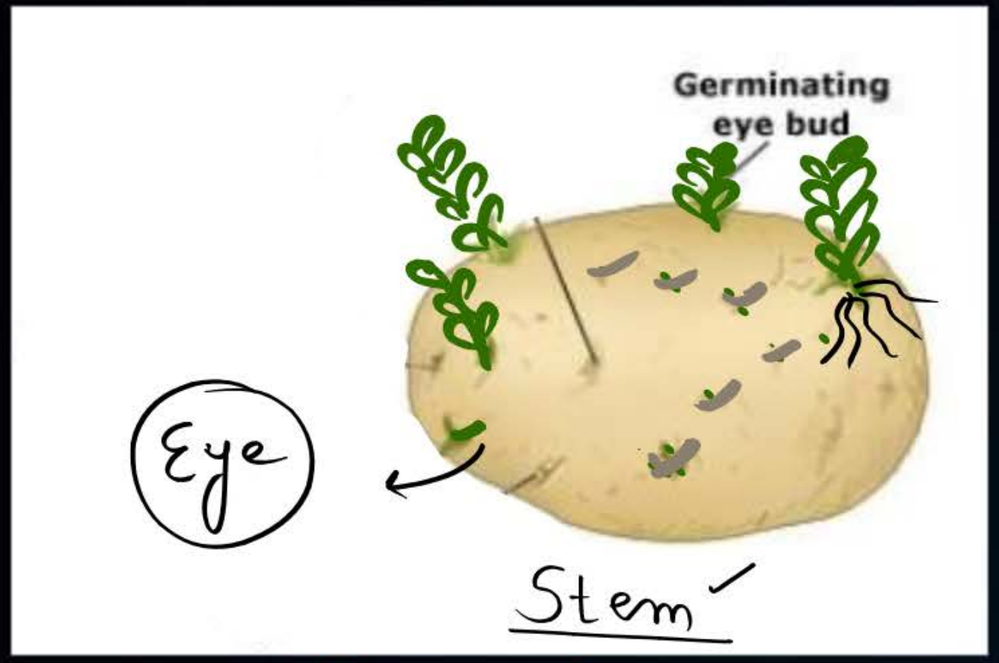
# Vegetative propagation

## Natural vegetative propagation

- By stem : Potato, onion, lemon
- By root: sweet potato, guava
- By leaf : Bryophyllum

## Artificial vegetative propagation

- Cutting
- Layering
- Grafting
- Tissue culture



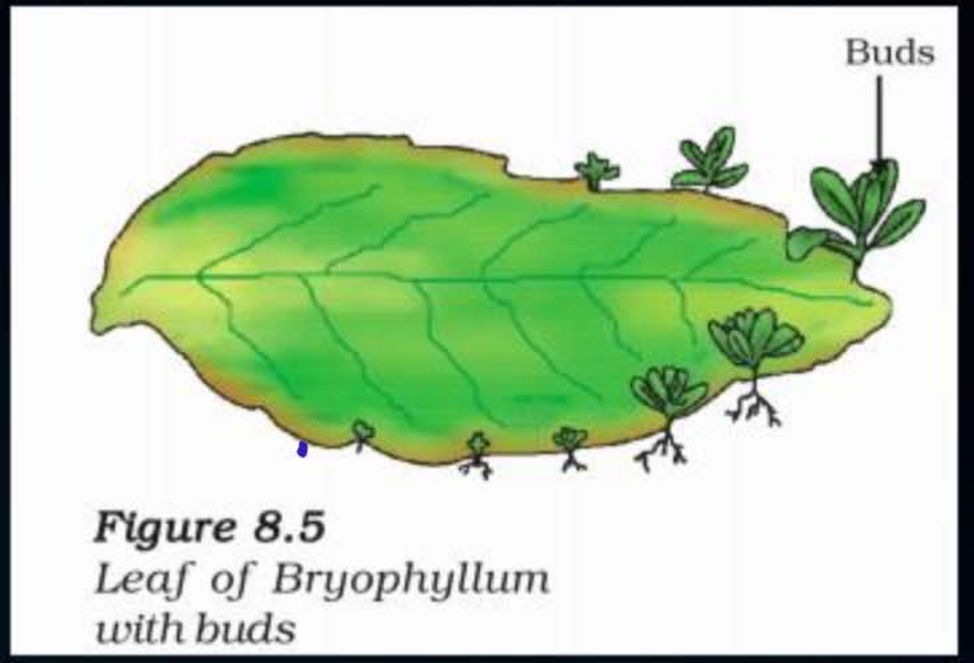
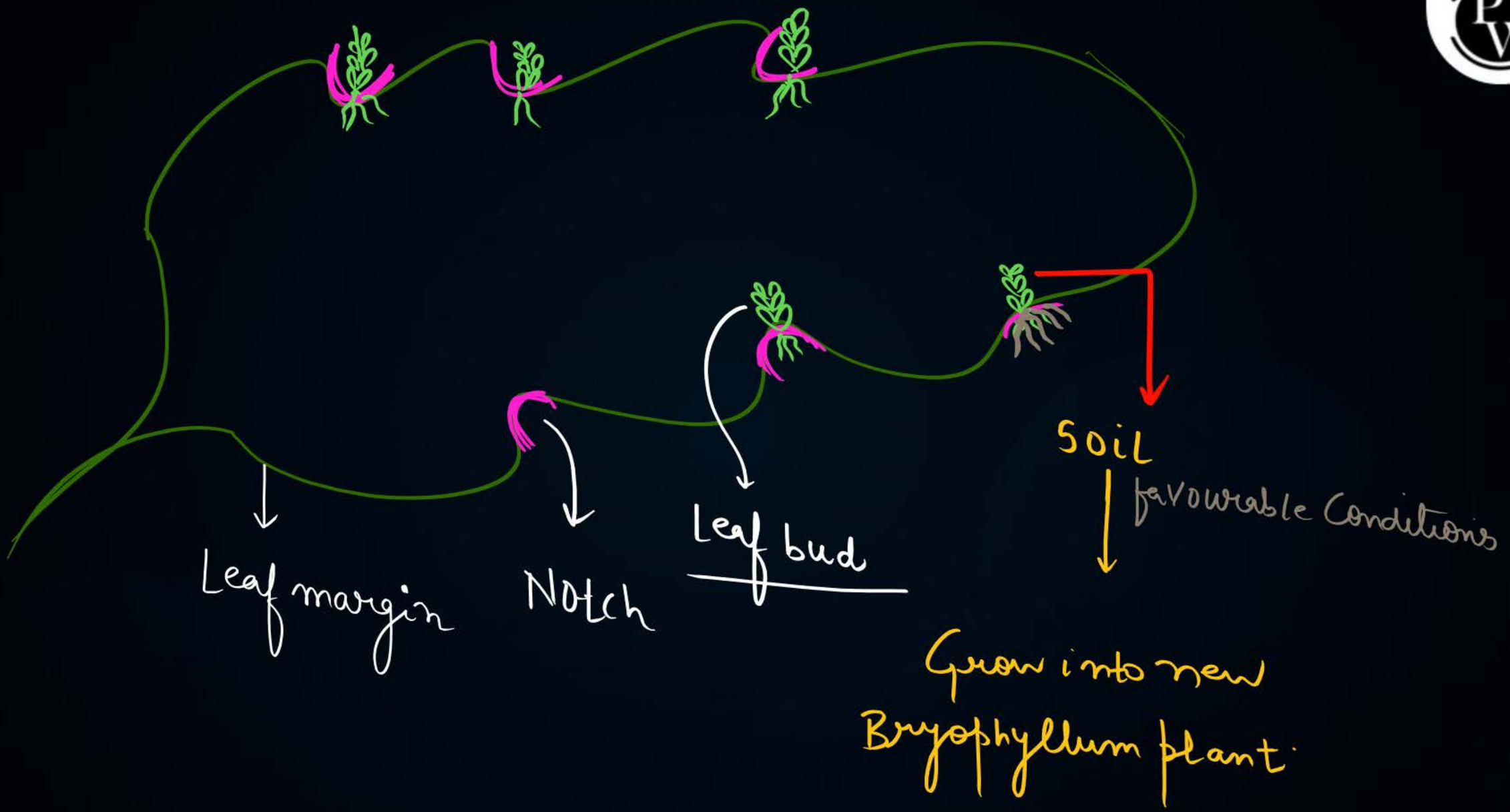
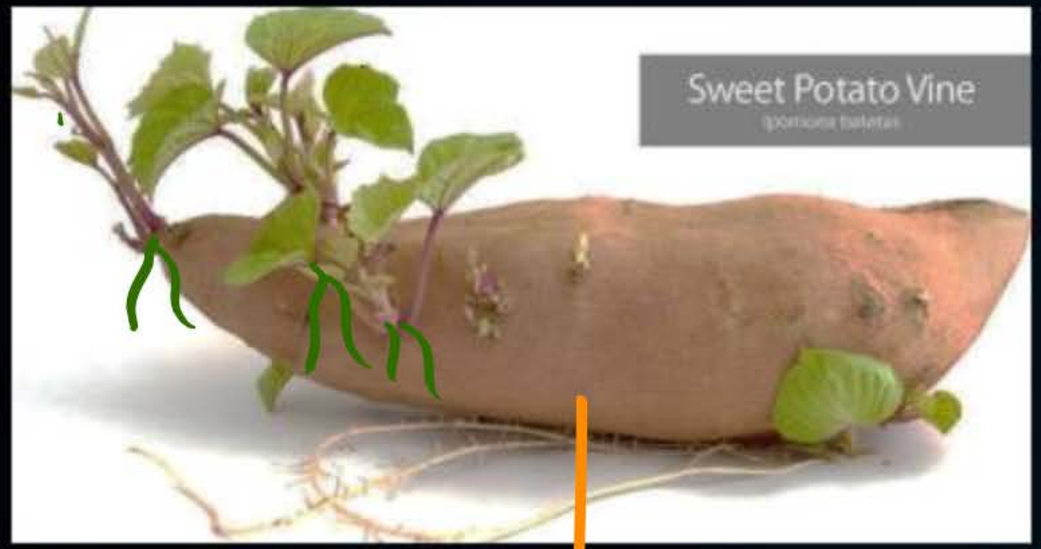



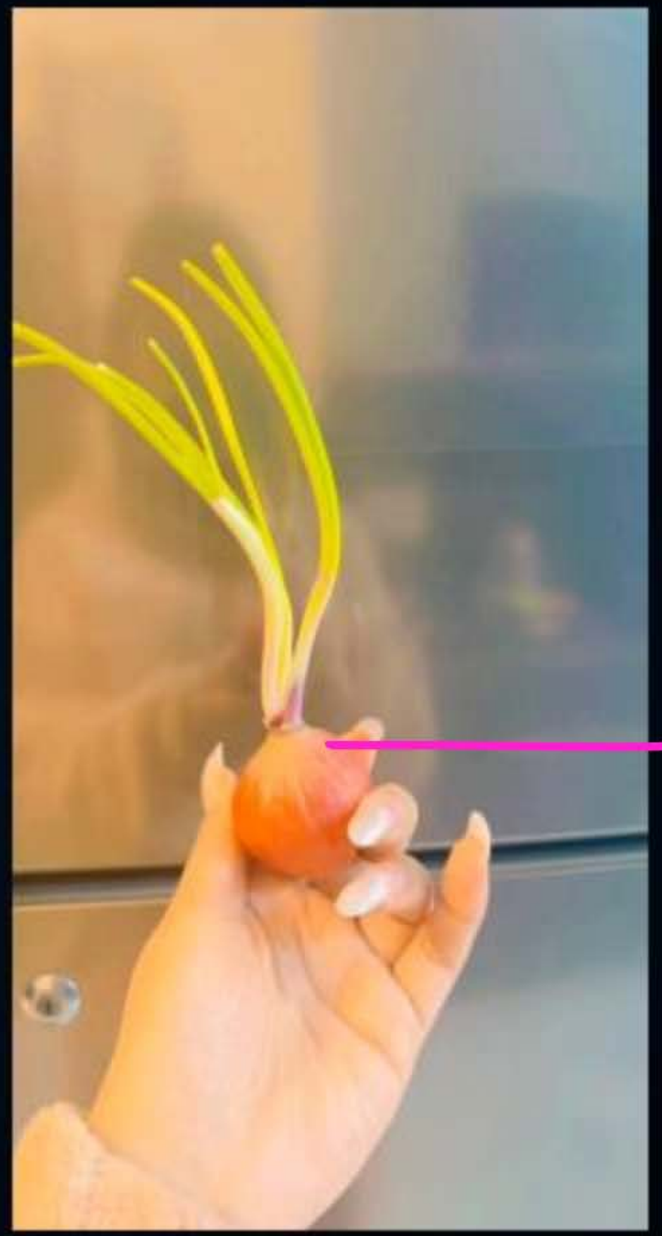

**Figure 8.5**
*Leaf of Bryophyllum with buds*

Potato: Modified Underground Stem (Tuber)


Soil
favourable Conditions
Leaf margin
Notch
Leaf bud
Grow into new
Bryophyllum plant.




Sweet Potato [Modified Root]



Onion Bulb (Modified Stem)

# Advantages of Vegetative propagation

# Advantages of Vegetative propagation

- Plants raised by vegetative propagation can bear flowers and fruits earlier than those produced from seeds.
- Plants can be produced in large numbers in less time. (Quick)
- Vegetative propagation is a more rapid, easier and cheaper method of multiplication of plants. (economical)

# Avantages of Vegetative propagation

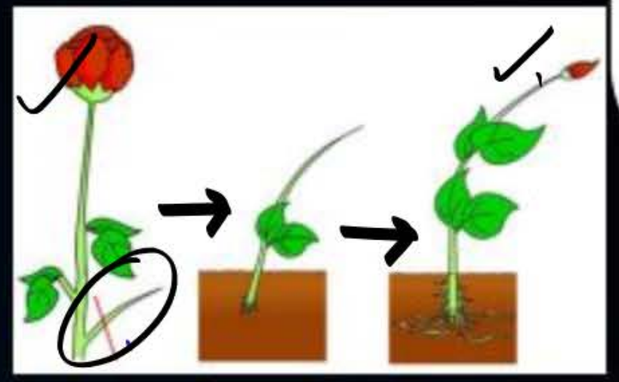
- Such methods also make possible the propagation of plants such as banana, orange, rose and jasmine that have lost the capacity to produce seeds.

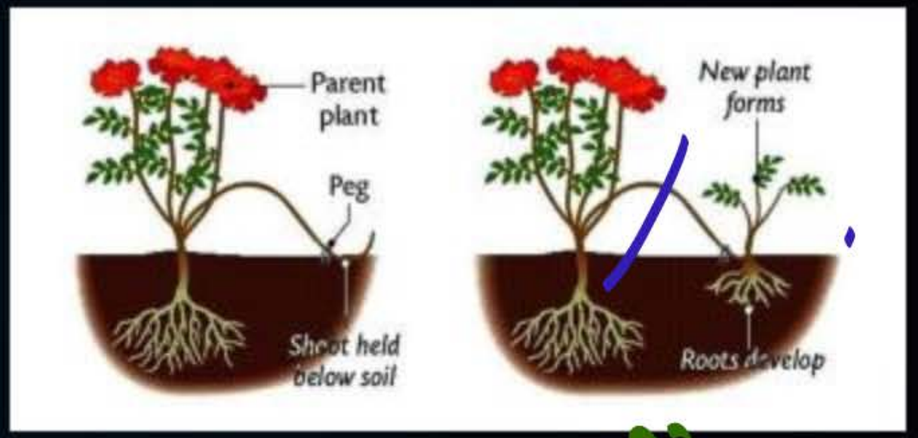
(DNA)

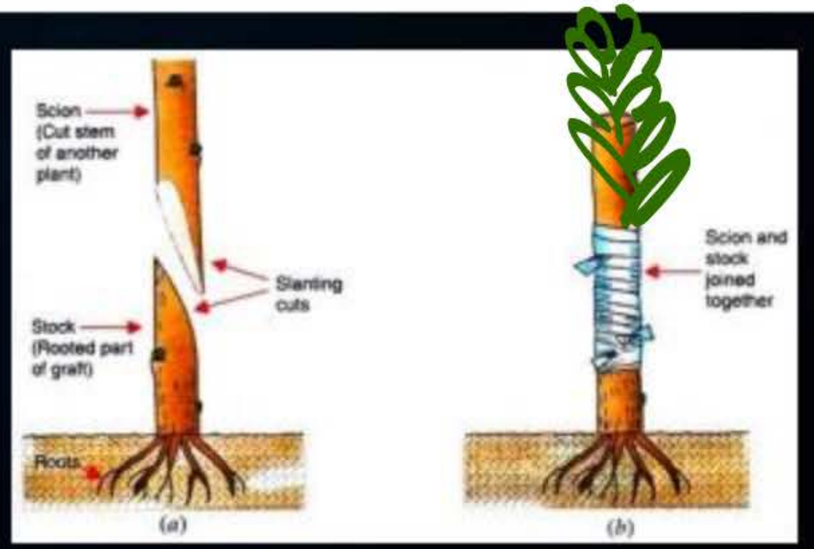
- All plants produced are genetically similar enough to the parent plant.
- Desirable character of fruit can be maintained.

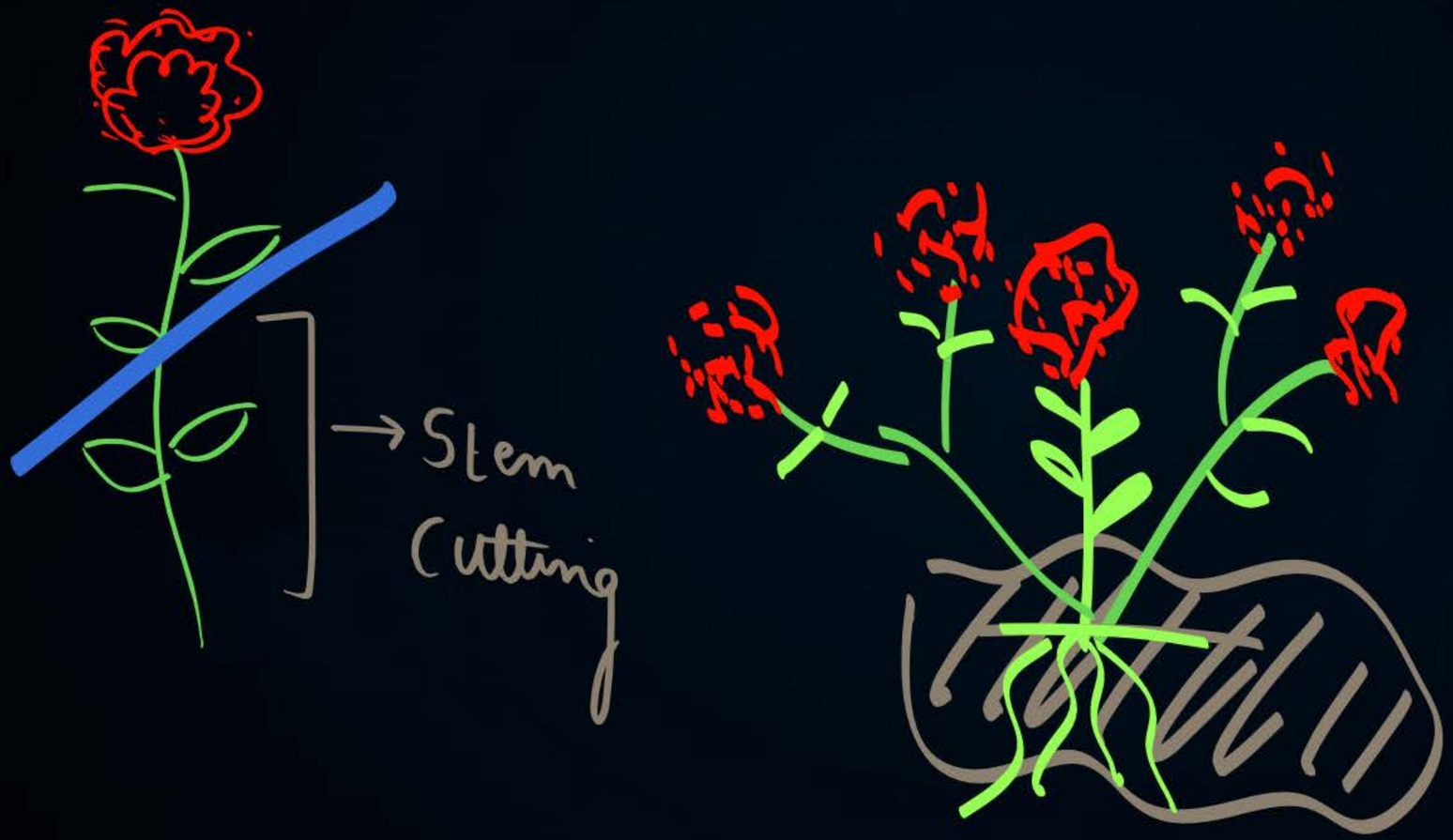
# Artificial vegetative propagation

- Artificial Vegetative Propagation
  - In the Laboratory
    - Tissue Culture
  - On Field
    - Cutting
    - Layering
    - Grafting






Stem
Cutting

Question

Bryophyllum vegetatively propagates through _____

A Stem

B Leaf ✓

C Root

D None of these

# Sexual Reproduction


#Ch

# Sexual Reproduction

#Ch

1. Two parents of different sexes (male and female) are involved.

2. Gamete formation and fertilisation takes place.
   → sperm / ovum

3. Offsprings shows genetic variations (DNA) which increases the chances of survival in changing environment.

*Deciding who will help in the process of sexual reproduction*

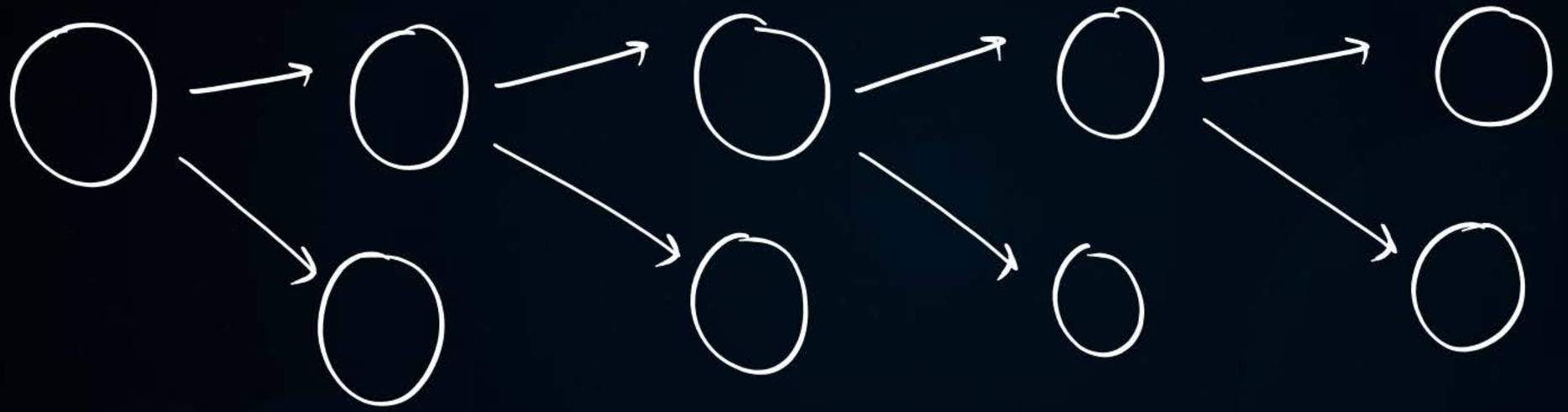
Gametes/Germ cells/Sex cells :

# Gametes → Specialized cells responsible for Sexual reproduction.

# Gametogenesis → The process of formation of gametes

- → Spermatogenesis { formation of Sperms }
- → Oogenesis { formation of egg cell / ovum }

# New Cells are formed by process of Cell division



Male parent

Meiosis | Spermogenesis

Sperm Cell

(Male gamete)

Female parent

Meiosis | Oogenesis

Egg cell / Ovum

(female gamete)

# Cell division

## Mitosis

→ Equitational division

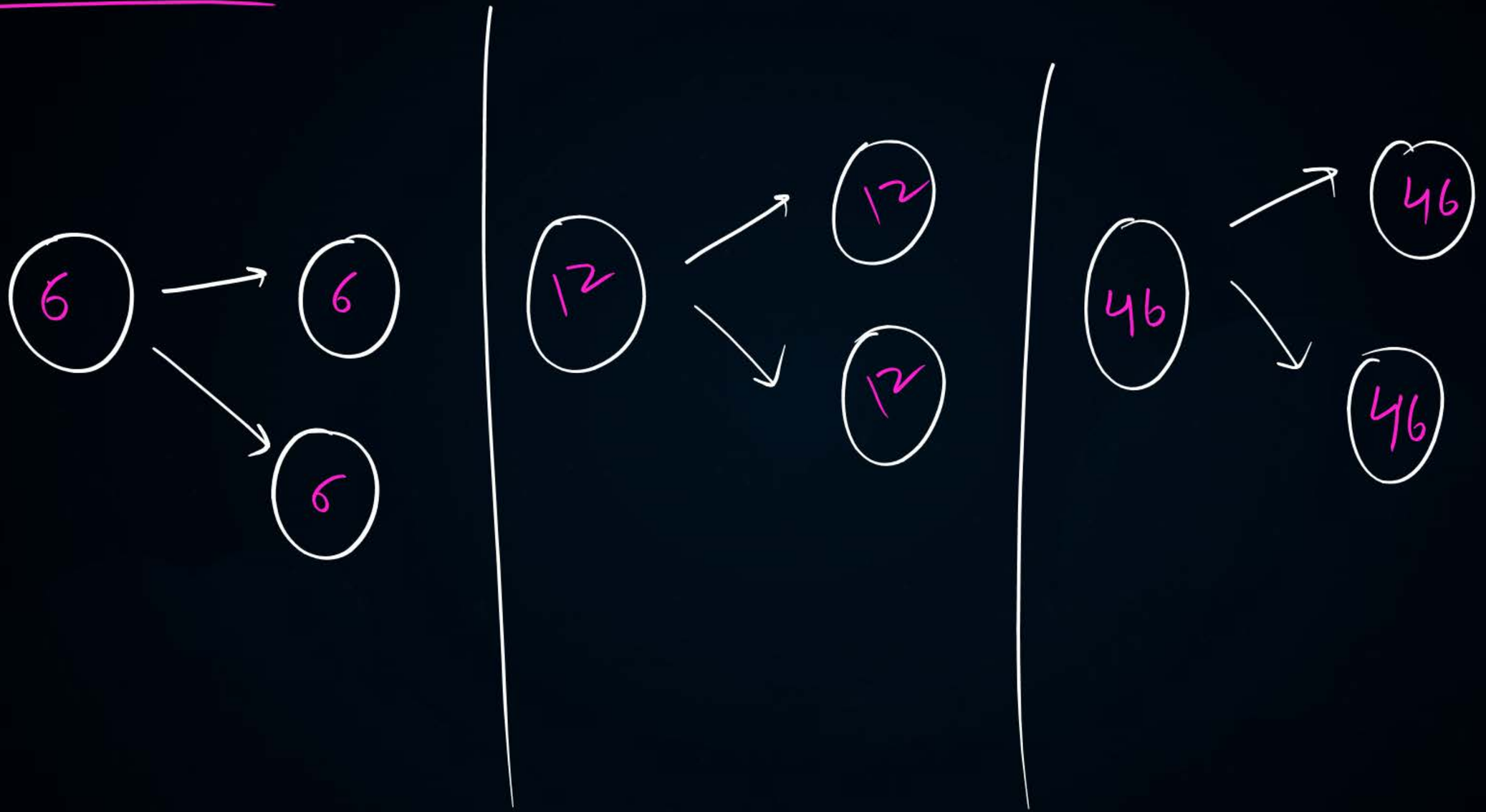
# Chromosome no. remain same

## Meiosis

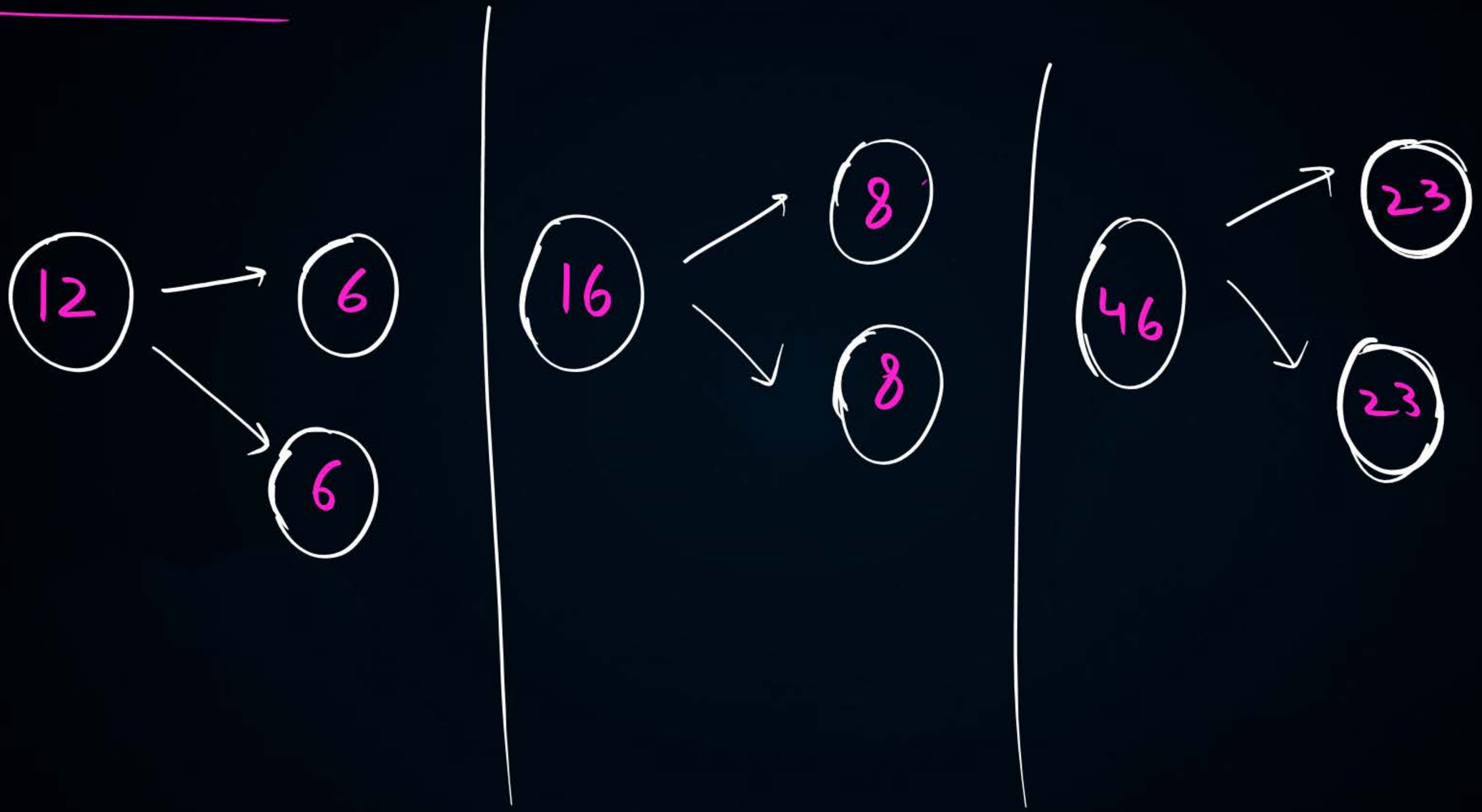
→ Reductional division

# Chromosome no. becomes half

# Mitosis



# Meiosis



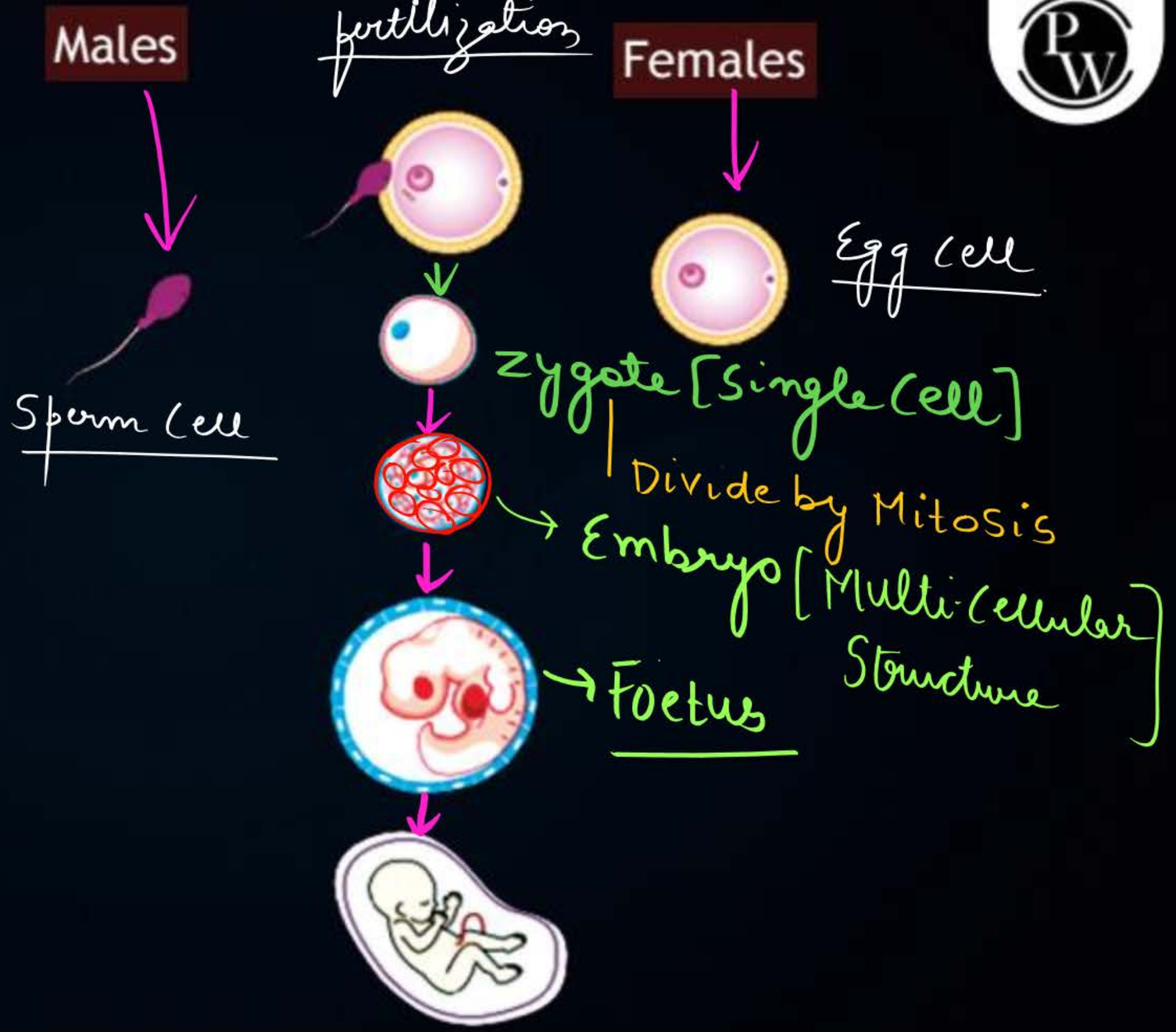
# SEXUAL REPRODUCTION IN ORGANISMS

Pre-fertilisation phase

- Gamete formation (Gametogenesis)
- Gamete transfer

**FERTILISATION**

- Formation of zygote
- Development to zygote into embryo
- Growth and Development of embryo in to whole new organism



Question

Which of the following type of cell division is involved in gamete formation ?

A Binary fission

B Mitosis

C Meiosis

D None of these

Question

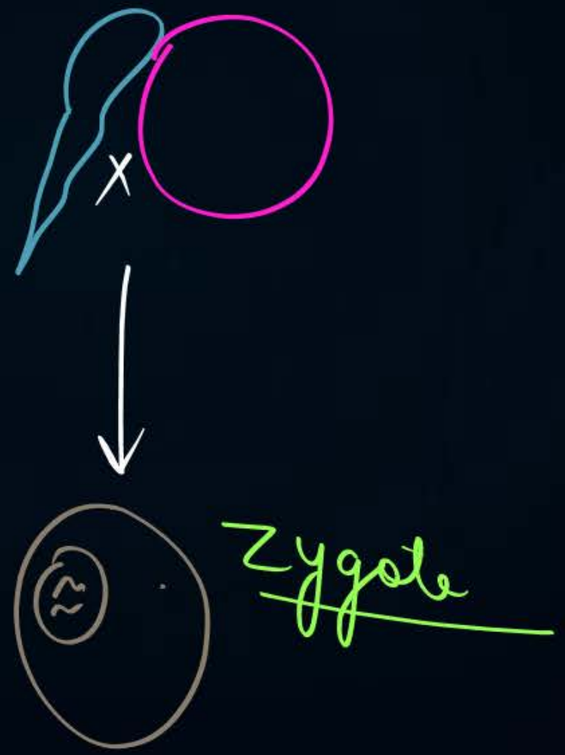
Which of the following is a result of fertilisation ?

A Sperm cell

B Zygote

C Pollen grain

D Ovum



Question

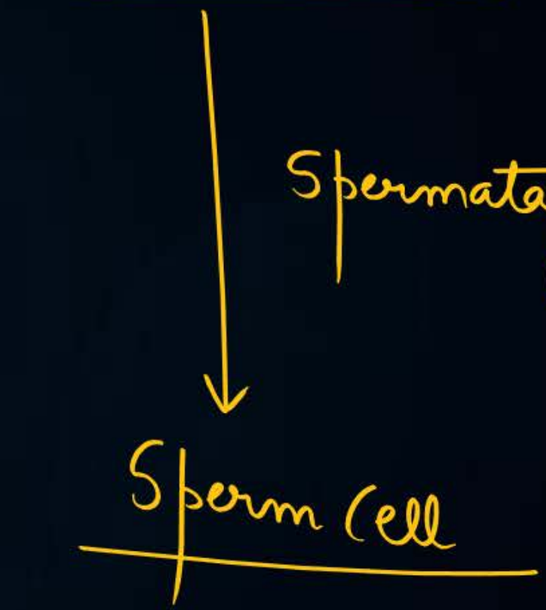
Which of the following is produced by male parent ?

A Ovum

B Egg

C Sperm

D Embryo



Question

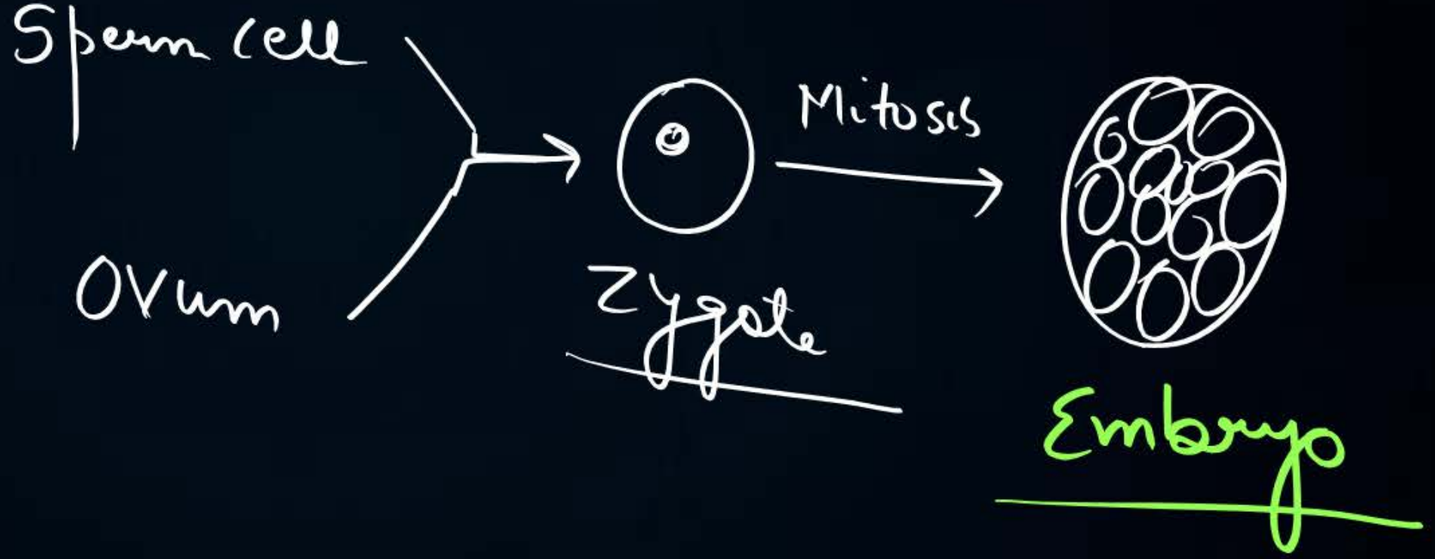
Which of the following is a multicellular structure ?

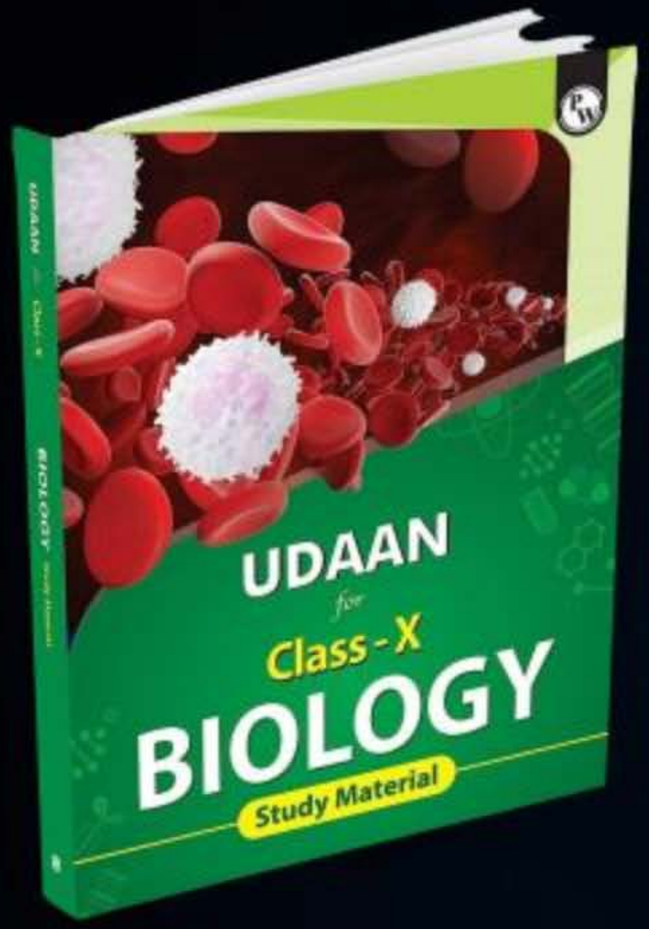
A Sperm cell

B Ovum

C Embryo ✓

D All of these






# Homework

FROM PW MODULE

( Udaan - CLASS 10 )

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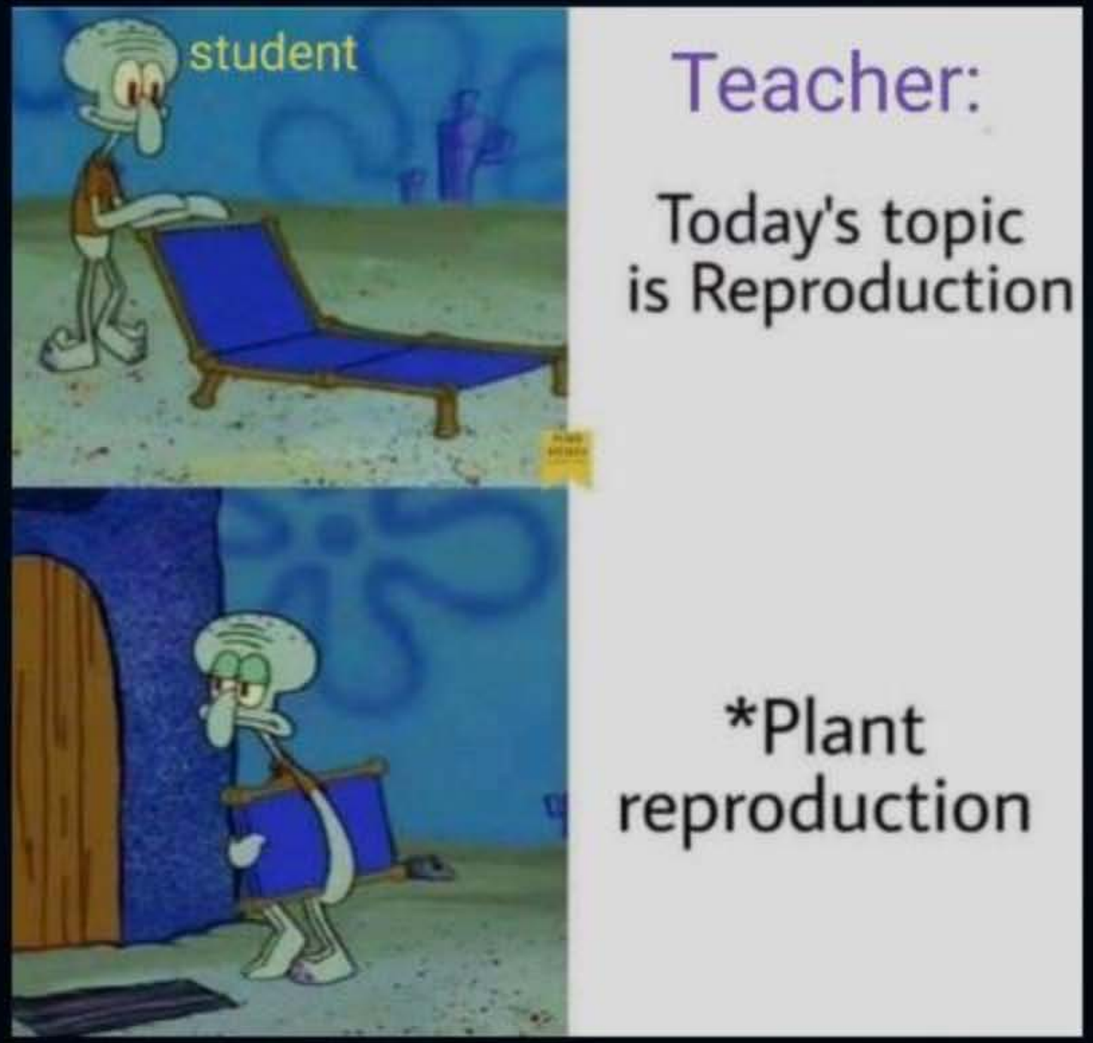
# Joke/Meme of the Day



# THANK YOU