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CHAPTER 1

# REPRODUCTION IN ORGANISMS

## POINTS TO REMEMBER

**Bulbils :** These are small, fleshy buds which develop into new plants as in *Agave.*

**Clone :** A group of organism derived from a single individual and hence morphologically and genetically similar.

**Embryogenesis :** The process of development of embryo from zygote.

**Gametogenesis:** The process of formation of male and female gametes.

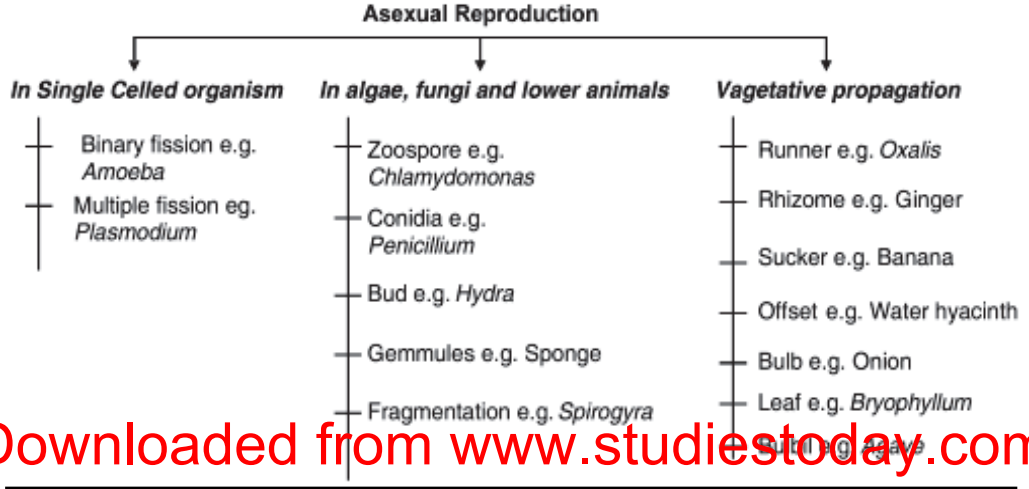
**Isogamete :** One of a pair of conjugating gametes.

**Juvenile Phase :** It is the period of growth before maturity when sex organs are not functional.

**Meiocytes :** These are specialized cells of diploid organisms which undergo meiosis.

**Pericarp :** It is the protective covering of fruit, may be divided into epicarp, mesocarp and endocarp.

**Parthenogenesis :** Development of an egg into an embryo without fertilisation.

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### Gamete Transfer

1. **In Algae, Bryophytes and Pteridophytes :** The male and female gametes are flagellated and motile, need a medium (water) to reach the egg.
2. In seed Plants : Pollen grains are transferred to stigma of flower of same species by various agents.
3. **In animals :**
   (a) By Copulation – e.g., Reptiles, Birds and Mammals.
   (b) By External medium – e.g., Fishes and Amphibians.

## QUESTIONS

### VSA (1 MARKS)

1. Offsprings produced by asexual reproduction are referred to as clones. Why?
2. Name the most invasive aquatic plant weed which is called as 'Terror of Bengal'.
3. How does Zygote usually differ from Zoospore in terms of ploidy?
4. Mention the main difference between the offspring produced by asexual reproduction and progeny produced by sexual reproduction.
5. Which characteristic property of Bryophyllum is exploited by gardeners and farmers?
6. Higher organism have resorted to sexual reproduction inspite of its complexity. Why?
7. Tapeworms posses both male and female reproductive organs. What is the name given to such organism? Give two more examples of such organisms.
8. Study the relationship between first two words and suggest a suitable word for fourth place.
   (a) Male flower : Stamens :: Female Flower : .....
   (b) Birds : oviparous :: Primates : .....
   (c) Chlamydomonas : Zoospores :: Penicilium : .....
   (d) Ginger : Rhizome :: Agave : .....

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9. Bryophytes and Pteridophytes produce a large number of male gametes but relatively very few female gametes. Why?

10. Mention the site of zygote formation in the ovule of a flowering plant. What happens to sepals, petals and stamens after fertilisation? State the fate of zygote, ovule and ovary in these plants.

11. Distinguish between gametogenesis and embryogenesis.

12. Fill the blank spaces a, b, c, and d given in the following table.

| Organism | Organ | Gamete |
|---|---|---|
| a | Testes | Spermatozoa |
| Human female | b | Ovum |
| Plant (Angiosperm) | c | Pollen grains |
| Plant (pteridophytes) | antheridium | d |

## LA (5 MARKS)

13. (a) Distinguish between asexual and sexual reproduction. Why is vegetative reproduction also considered as a type of asexual reproduction?

(b) Which is better mode of reproduction : Sexual or Asexual? Why?

1. Because offsprings produced by Asexual reproduction is morphologically and genetically identical to parent.

2. Water hyacinth *(Eicchornia)*

3. Zygote – diploid, zoospore – haploid.

4. Offspring produced by asexual reproduction are genetically similar while progeny produced by sexual reproduction exhibit genetic variation.

5. Adventitious bud arising from margin of the leaf.

## LA (II 2 MARKS)

6. Because of variations, gene pool, Vigour and Vitality and Parental care.

7. Hermaphrodite; Examples : Earthworm, Leech.

8. (a) Carpel (b) Viviparous

(c) Conidia (d) Bulbil

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9. Because male gemete need medium (water) to reach egg/female gamete. A large number of the male gametes fail to reach the female gamete.

## LA – I (3 MARKS)

10. Embryo sac

Sepals, Petals and Stamens dry and fall off. Zygote develops into embryo. Ovule develops into seed and ovary into fruit.

11.

| ***Gametogenesis*** | ***Embryogenesis*** |
|---|---|
| 1. Formation of gametes | 1. Formation of embryo |
| 2. Produces haploid gametes | 2. Embryo is diploid |
| 3. Cell division is meiotic | 3. Cell division is mitotic. |

12. a = Human male b = ovary

c = Anther d = Antherozoid

13. (a)

| **Asexual Reproduction** | **Sexual Reproduction** |
|---|---|
| (i) Uniparental | (i) Biparental |
| (ii) Gametes are not involved | (ii) Gametes are involved |
| (iii) Only mitotic division takes place | (iii) Meiosis at the time of gamete formation and mitosis after fertilisation |
| (iv) Offspring genetically similar to parent | (iv) Offspring different from parent. |

Vegegative propagation takes plce when new individuals arise from vegetative part of parent and have characters similar to that of parent plant.

(b) Sexual reproduction introduces variations in offsprings and has evolutionary significance. It helps offsprings to adjust according to the changes in environment. It produces better offsprings due to character combination.

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