



NCERT Solutions for 12th Class Biology: Chapter 1-Reproduction in Organisms



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NCERT Solutions for 12th Class Biology: Chapter 1- Reproduction in Organisms

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Exercises

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1. Why is reproduction essential for organisms?**Answer**

Reproduction is essential for organisms for continuity of species. Each and every organism have definite life span. If organisms stops reproducing the species will not be able to exist for long time and get extinct.

2. Which is a better mode of reproduction sexual or asexual? Why?**Answer**

Sexual mode of is a better mode of reproduction because in sexual mode there is fusion of male and female gametes which results genetic variations in offspring which give some survival advantages under stressful environmental conditions. It also contributes to evolution.

3. Why is the offspring formed by asexual reproduction referred to as clone?**Answer**

The offspring formed by asexual reproduction referred to as clone because the offspring morphologically and genetically similar to each other and parent.

4. Offspring formed due to sexual reproduction have better chances of survival. Why? Is this statement always true?**Answer**

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In sexual reproduction there is fusion of the male and the female gamete which leads to variations by the combination of the different DNA. This variations allow the individuals to adapt under varied environmental conditions for better chances of survival. Also, the offspring may be hybrid vigour which may adjust better with environment.

No, the statement is not always true because offspring may be inferior to the parents.

5. How does the progeny formed from asexual reproduction differ from those formed by sexual reproduction?

Answer

Progeny formed from asexual reproduction

There is no fusion of gametes therefore progeny are morphologically and genetically identical to single parent.

Variations are absent.

Progeny is less adaptable to changes in environment.

Progeny formed from sexual reproduction

There is fusion of gametes therefore progeny are not identical to parents.

Variations are present.

Progeny is more adaptable to changes in environment.

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**6. Distinguish between asexual and sexual reproduction.
Why is vegetative reproduction also considered as a type of asexual reproduction?**

Answer

Asexual reproduction	Sexual reproduction
It does not involve fusion of male and female gametes.	There is fusion of gametes therefore progeny are not identical to parents.
Single parent involved	Two parents involved usually.
The offspring are identical to the parent and are called as clones.	The offspring are not identical to their parents and show variations from each other and their parents.
It does not play an important role in evolution process.	It plays an important role in evolution process.
It is common in single celled organisms or organisms with simple structure.	It is common in high level organisms which have complex structure.
Only mitotic cell division takes place.	It involves both meiosis and mitosis.

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Rate of reproduction is faster Rate of reproduction is slower

Vegetative reproductions is also considered as a type of asexual reproduction because

- Single parent is involved.
- There is no fusion of male and female gametes.
- Offspring are generally identical.

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7. What is vegetative propagation? Give two suitable examples.

Answer

Vegetative propagation is the process of reproducing plants from any portion of the vegetative organs of the plant without involving the seeds or spores. It involves only single parent and considered as asexual reproduction. Examples of vegetative propagation are:

- Eyes (buds) on the potato tuber.
- Adventitious buds on the leaves of Bryophyllum are capable of giving rise to new plants

8. Define

(a) Juvenile phase,

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(b) Reproductive phase,

(c) Senescent phase

Answer

(a) The period of growth from birth up to a stage, where the organism will start undergoing changes leading to reproductive maturity is known as Juvenile phase.

(b) The period during which an organism is sexually mature and can produce gametes that can give rise to new organisms is known as Reproductive phase.

(c) The period from the end of the reproductive phase till death. In this period, slower metabolism, break down of proteins, immobilisation of nutrients takes place in animals whereas in plants, leaves become yellow and fall off.

9. Higher organisms have resorted to sexual reproduction in spite of its complexity. Why?

Answer

Higher organisms have resorted to sexual reproduction because it allows genetic variations through the combination of different genetics in gametes and improves the genetic makeup in the offspring. These factors may give survival advantages to species and contribute to evolution.

10. Explain why meiosis and gametogenesis are always interlinked?

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Answer

Haploid gametes can be produced only through meiosis and gametogenesis is the process of formation of gametes. The gametes produced by gametogenesis are always haploid, while the body of an organism is diploid. Therefore, it is necessary that meiosis has to occur for the formation of haploid gametes which ensures half number of chromosomes in the developing gametes.

11. Identify each part in a flowering plant and write whether it is haploid (n) or diploid (2n).

(a) Ovary _____

(b) Anther _____

(c) Egg _____

(d) Pollen _____

(e) Male gamete _____

(f) Zygote _____

Answer

(a) Ovary Diploid

(b) Anther Diploid

(c) Egg Haploid

(d) Pollen Haploid

(e) Male gamete Haploid

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(f) Zygote Diploid

12. Define external fertilization. Mention its disadvantages.

Answer

External fertilisation is a type of fertilization that occurs outside the female body, in external medium, such as water.

Disadvantages of external fertilisation are

- Very less chance of fusion of male and female gametes.
- Offspring are vulnerable to predators because of no parental care.

13. Differentiate between a zoospore and a zygote.

Answer

Zoospore	Zygote
It is an asexual reproductive structure.	It is sexual reproductive structure.
It is a motile asexual spore that uses flagella for movement.	It is a non-motile cell.
It can be haploid or diploid.	It is diploid

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It germinates to directly give rise to new plants.

It develops into an embryo that further differentiates to form a new individual.

14. Differentiate between gametogenesis from embryogenesis.

Answer

Gametogenesis	Embryogenesis
It is the process of generation of haploid gametes.	It is the process of formation of embryo.
It involves meiosis.	It involves mitosis.
Further transformation may be required to make male gametes motile	Further cell differentiation required for the formation of specialised tissues and organs.

15. Describe the post-fertilization changes in a flower.

Answer

Post-fertilization changes in flower are:

- The sepal, petal and stamen of the flower withers and fall off only pistil remains attached to the plant.
- The zygote develops into the embryo.

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- The ovules develop into the seed.
- The ovary develops into the fruit.
- The ovary wall is transformed into a protective layer called the pericarp which covers the fruit.

16. What is a bisexual flower? Collect five bisexual flowers from your neighbourhood and with the help of your teacher find out their common and scientific names.

Answer

A flower bearing both male and female organs (stamens and pistil) is called a bisexual flower. Flowers with common name and scientific names:

- Rose - *Rosa alba*
- Water lily - *Nymphaea odorata* • Sun flower - *Helianthus annuus*
- China rose - *Hibiscus Rosa-sinensis*
- Mustard - *Brassica nigra*

17. Examine a few flowers of any cucurbit plant and try to identify the staminate and pistillate flowers. Do you know any other plant that bears unisexual flowers?

Answer

Cucurbit plant bears separate male and female flowers. The staminate flowers bear bright, yellow coloured petals along with stamens

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representing the male reproductive structure while the pistillate flowers bear only the pistil representing the female reproductive structure.

18. Why are offspring of oviparous animals at a greater risk as compared to offspring of viviparous animals?

Answer

The offspring of oviparous animals are at a greater risk because they develop outside the female body and are exposed to various environmental conditions and predator threat whereas in viviparous animals, young ones develop inside the female body, which ensures proper embryonic care and protection.



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- Chapter 1: Reproduction in Organisms
- Chapter 2: Sexual Reproduction in Flowering Plants
- Chapter 3: Human Reproduction
- Chapter 4: Reproductive Health
- Chapter 5: Principles of Inheritance and Variation
- Chapter 6: Molecular Basis of Inheritance
- Chapter 7: Evolution
- Chapter 8: Human Health and Disease
- Chapter 9: Strategies for Enhancement in Food Production
- Chapter 10: Microbes in Human Welfare
- Chapter 11: Biotechnology Principles and Processes
- Chapter 12: Biotechnology: and its Application
- Chapter 13: Organisms and Populations
- Chapter 14: Ecosystem
- Chapter 15: Biodiversity and Conservation
- Chapter 16: Environmental Issues

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