

Chapter 9 Exercise Questions

1. Explain the importance of reproduction in organisms.

Soln:

Importance of reproduction in organisms is as follows

- Reproduction is termed to be a biological process in which organisms give birth to their off springs.
- It helps in maintaining the continuity of a particular race and helps in increasing the population of the species.
- Reproduction is meant for the survival of all living things.

2. Describe the process of fertilisation in human beings.

Soln:

- Fertilization is defined as the process in which there is a fusion of male gamete and female gamete.
- The male gametes or sperms are released from the male reproductive organ called the penis.
- The sperms release and enter the female body through the vagina.
- From the vagina, sperms travel through the fallopian tubes where they meet the eggs.
- From there on, the process of fertilization takes place in the fallopian tube.
- The male gamete cell (sperm) and female gamete cell (egg) fuse together to form a zygote.
- The zygote divides rapidly to form a group of cells called morula, which becomes the embryo after approximately five days. The foetus is present for about eight weeks after the fertilization.
- **Choose the most appropriate answer.**
- **(a) Internal fertilisation occurs**
- **(i) in female body.**
- **(ii) outside female body.**
- **(iii) in male body.**
- **(iv) outside male body.**
- **(b) A tadpole develops into an adult frog by the process of**
- **(i) fertilisation**

- **(ii) metamorphosis**
- **(iii) embedding**
- **(iv) budding**
- **(c) The number of nuclei present in a zygote is**
- **(i) none**
- **(ii) one**
- **(iii) two**
- **(iv) four**

• **Soln:**

- a) (i) in female body.
- b) (ii) metamorphosis
- c) (iii) two

• **4. Indicate whether the following statements are True (T) or False (F).**

- **(a) Oviparous animals give birth to young ones. ()**
- **(b) Each sperm is a single cell. ()**
- **(c) External fertilisation takes place in frog. ()**
- **(d) A new human individual develops from a cell called gamete. ()**
- **(e) Egg laid after fertilisation is made up of a single cell. ()**
- **(f) Amoeba reproduces by budding. ()**
- **(g) Fertilisation is necessary even in asexual reproduction. ()**
- **(h) Binary fission is a method of asexual reproduction. ()**
- **(i) A zygote is formed as a result of fertilisation. ()**
- **(j) An embryo is made up of a single cell. ()**

• **Soln:**

- a) False
- b) True
- c) True
- d) False

- e) True
- f) False
- g) False
- h) True
- i) True
- j) False

5. Give two differences between a zygote and a foetus.

Soln:

Zygote:

- It is the earliest stage of development
- It is formed by the fusion of male and female gametes
- It is a single cell
- The zygote divides several times to form an embryo
- The zygote normally lasts a week and then develop into its next stage.

Foetus

- It is the last developmental stage of an organism
- The stage of the embryo that shows all the main recognizable body parts of a mature organism.
- The foetus stage occurs after the embryo stage.
- Foetus mainly undergoes internal development.

6. Define asexual reproduction. Describe two methods of asexual reproduction in animals.

Soln:

In this type of reproduction, the offspring arises from a single organism without the fusion of male and female gametes. It never changes the number of chromosomes.

Binary fission in amoeba

- It is a kind of asexual reproduction in which one cell divides into two halves.
- It is a unicellular organism that has a cell membrane, cell wall and cytoplasm.
- The division of the cell can take place on any plane.

- In this process, the nucleus of the amoeba first divides to form two daughter nuclei by the process called Karyokinesis.
- Finally, the division of the body into two halves having a nucleus respectively takes place.

Finally, the division of the body into two halves having a nucleus **In which female reproductive organ does the embryo get embedded?**

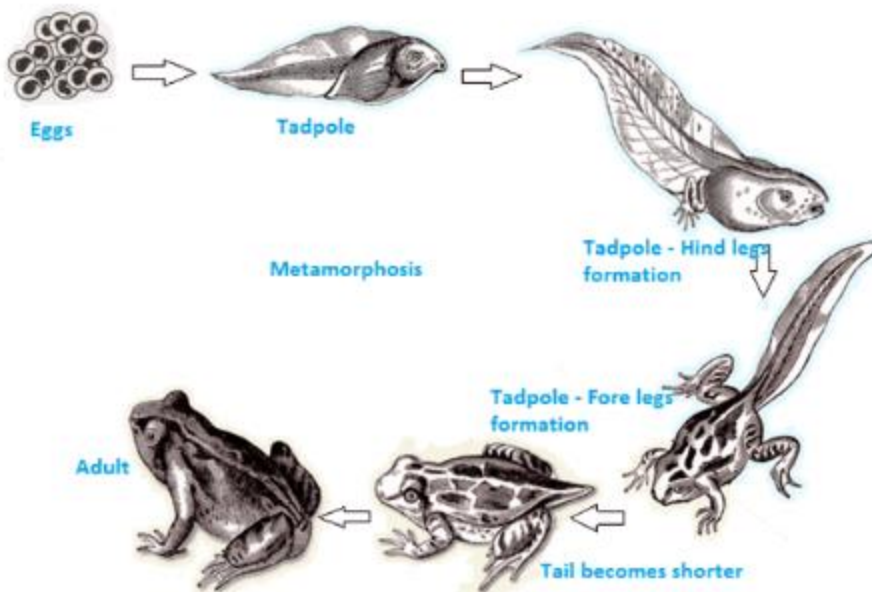
Soln:

- In the female reproductive organ, the embryo gets attached to the uterus.
- Once it gets attached, there occurs the formation of body parts like legs, hands, eyes etc.
- The embryo is then called a foetus.

8. What is metamorphosis? Give examples.

Soln:

- It is defined as the process in which an animal's body structure abruptly changes through cell growth and differentiation.
- It is a biological process.
- Examples of this kind are frog and insects.



The life cycle of a frog:

The tadpole emerging from the egg will have gills, tail, etc.

They can swim easily in water.

It undergoes abrupt changes and develops into a mature frog.

9. Differentiate between internal

- respectively takes place.

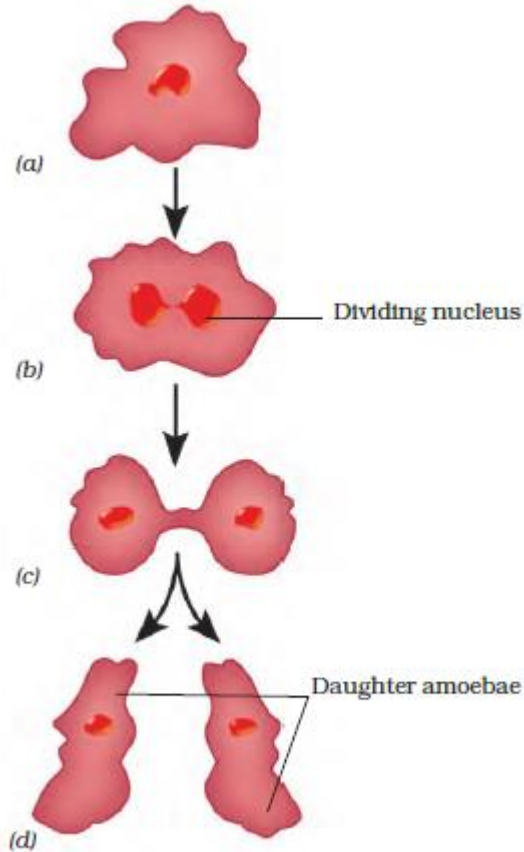
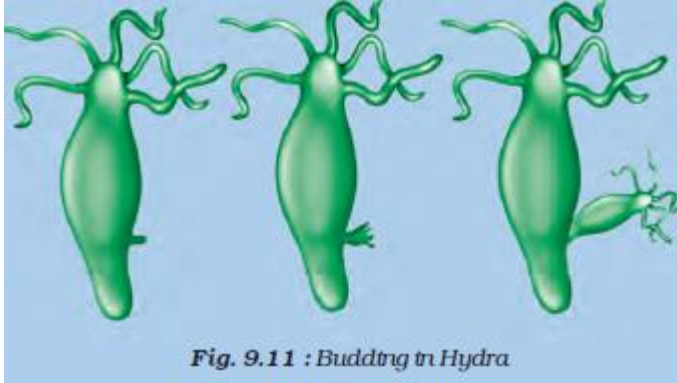


Fig. 9.12 : Binary fission in Amoeba

Budding in hydra

- Organisms such as hydra, use regenerative cells for reproduction in the process of budding.
- The first step is the formation of buds, and it develops as a small outgrowth on the parent's body.
- As the bud enlarges, it receives the characteristics of the parent organism.
- Once it is developed, it may be detached from the parent body and develop into a new individual.
- In some rare cases, the buds may not be detached forming interconnected buds.
- There are also methods like fragmentation, multiple fission etc.



7. In which female reproductive organ does the embryo get embedded?

Soln:

- In the female reproductive organ, the embryo gets attached to the uterus.
- Once it gets attached, there occurs the formation of body parts like legs, hands, eyes etc.
- The embryo is then
- Finally, the division of the body into two halves having a nucleus respectively takes place.

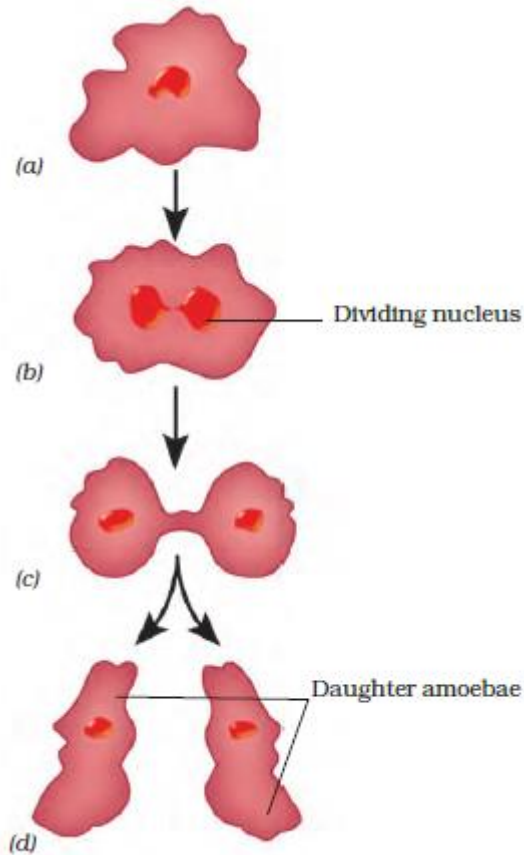
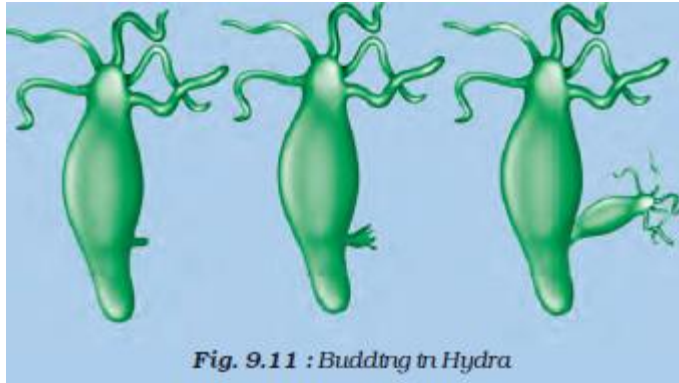


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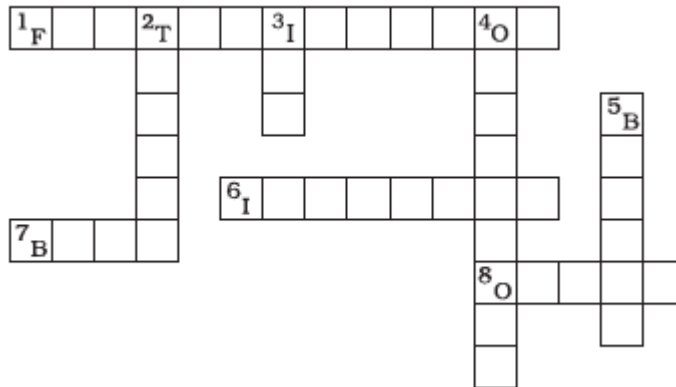


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- **Differentiate between internal fertilisation and external fertilisation.**
- **Soln:**
- **Fertilization, in general, is defined as the fusion of a male and a female gamete.**
- **Internal fertilization**
- It occurs inside the female body.
- There are high chances of survival of the offspring.
- Internal fertilization protects the fertilized egg or embryo from harsh environments.
- Examples are cow, humans, dogs, monkeys, etc.
- **External fertilization**
- It occurs outside the female body.
- There are low chances of survival of the offspring.
- Most aquatic animals use this type of fertilization and the advantage of external fertilization is that it produces a large number of offspring due to external hazards.
- Examples are fish, frog, organisms etc.

- 10. Complete the crossword puzzle using the hints given below.
- **Across**
- 1. The process of the fusion of the gametes.
- 6. The type of fertilisation in hen.
- 7. The term used for bulges observed on the sides of the body of hydra.
- 8. Eggs are produced here.
- **Down**
- 2. Sperms are produced in these male reproductive organs.
- 3. Another term for in vitro fertilisation.
- 4. These animals lay eggs.
- 5. A type of fission in amoeba



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- Soln:
- **Across**
- 1) Fertilization
- 6) Internal
- 7) Buds
- 8) Ovary
- **Down**
- 2) Testis
- 3) Zygote
- 4) Oviparous

- 5) Binary