



Chapter 9

Reproduction in Animals

SOLUTIONS:

EXERCISES:

Q1. Write the importance of reproduction in organisms.

Ans: Reproduction is a biological process through which living organisms produce offspring similar to themselves. Reproduction is important for the survival of all living things. Without a mechanism of reproduction life would come to end. Thus reproduction ensures the continuation of similar kinds of individuals' generation after generation

Q2. Describe the process of fertilization in human beings.

Ans: The process of fusion of the male gamete sperm with the female gamete ovum is called fertilization. In human, internal fertilization takes place. The male and female gametes are released from the male and female reproduction organs when sperms come in contact with an egg. During the process, the nuclei of the sperm and egg fuse to form a single nucleus and result in the formation of fertilized egg or zygote. Fertilization takes place in the fallopian tube (oviduct) of the female reproductive organs.



Fig: Fertilisation

Fig: Zygote

Q.3. Choose the most appropriate answer.

a. Internal Fertilisation occurs

- in female body
- outside female body
- in male body
- outside male body

Answer: i. in female body

b. A tadpole develops into an adult frog by the process

- i. fertilisation
- ii. metamorphosis
- iii. embedding
- iv. budding

Answer: ii. metamorphosis

c. the number of nuclei present in a zygote is

- i. none
- ii. one
- iii. two
- iv. four

Answer: ii. One

Q4. Indicate whether the following statements are True (T) or False (F).

- 1. Oviparous animals give birth to young ones.
- 2. Each sperm is a single cell.
- 3. External fertilisation takes place in frog.
- 4. A new human individual develops from a cell called gamete.
- 5. Egg laid after fertilisation is made up of a single cell.
- 6. Amoeba reproduces by budding.
- 7. Fertilisation is necessary even in asexual reproduction.
- 8. Binary fission is a method of asexual reproduction.
- 9. A zygote is formed as a result of fertilisation.
- 10. An embryo is made up of a single cell.

Answer:

- 1. False
- 2. True
- 3. True
- 4. False
- 5. True
- 6. False
- 7. False
- 8. True
- 9. True
- 10. False



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Q5. Give two differences between a zygote and a foetus.

Answer:

| Zygote | Foetus |
|---|--|
| (i) It is a single celled | (i) It is multicelled |
| (ii) It is formed by the fusion of male gamete or sperm and female gamete or ova (egg). | (ii) It is formed by the repeated division of the zygote |

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

Answer: The type of reproduction in which only a single parent is involved is called asexual reproduction. Fusions of male and female gametes do not take place.

Two methods of asexual reproduction are budding and Binary fusion:

Budding: In Budding there is formation of a new individual from the bulges known as buds and this bud develop into a new individual. Budding is common in Hydra and yeast.



Fig: Budding in hydra

Binary Fusion:

In this type of reproduction, a single celled organism divides into two halves eg. Amoeba and bacteria.

In amoeba the division of cells takes place in plane. The nucleus is divided into two nuclei, which is followed by the division of its body into two halves. Each half of body receives a nucleus and develops into new organisms.

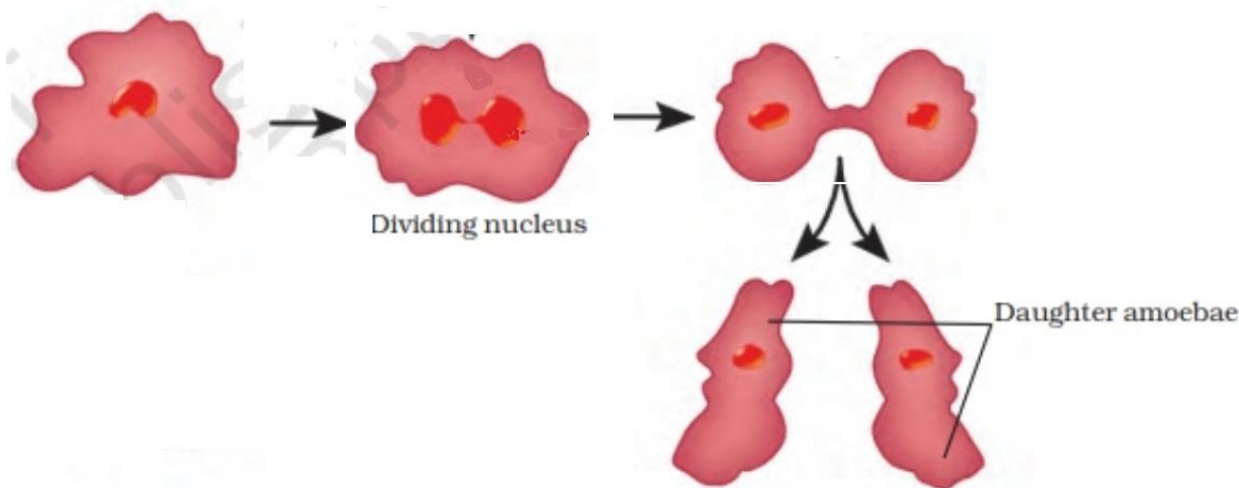


Fig: Binary fusion in Amoeba

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

Answer: The embryo gets embedded in the walls of the uterus of female reproductive organ.

Q 8. What is metamorphosis? Give examples.

Answer: The transformation of larva into adult through drastic changes is called metamorphosis. The new individuals are hatched from the eggs and continuous to grow till they become adults. In some animals the young ones may look very different from the adults.

Examples:

1. The life cycle of frog:
Egg → Tadpole → Adult frog
2. The life cycle of silkworm
Egg → larva/Caterpillar → Pupa → Adult mot

Q 9. Differentiate between internal fertilisation and external fertilisation.

Answer:

| INTERNAL FERTILISATION | EXTERNAL FERTILISATION |
|--|---|
| i. The fusion of male and female gametes takes place inside the female body | i. The fusion of the male and female gametes takes place outside the female body. |
| ii. Small number of eggs are produced as the changes of fertilization is very high | ii. Large number of eggs are produced as changes of fertilization is very low. |
| iii. Chances of the survival of the offspring are more | iii. Chances of survival of the offspring are less |
| iv. e.g. Human, cow, hen etc. | iv. fish, frog, star fish etc. |

Q 10. Complete the crossword puzzle using the hints given below.

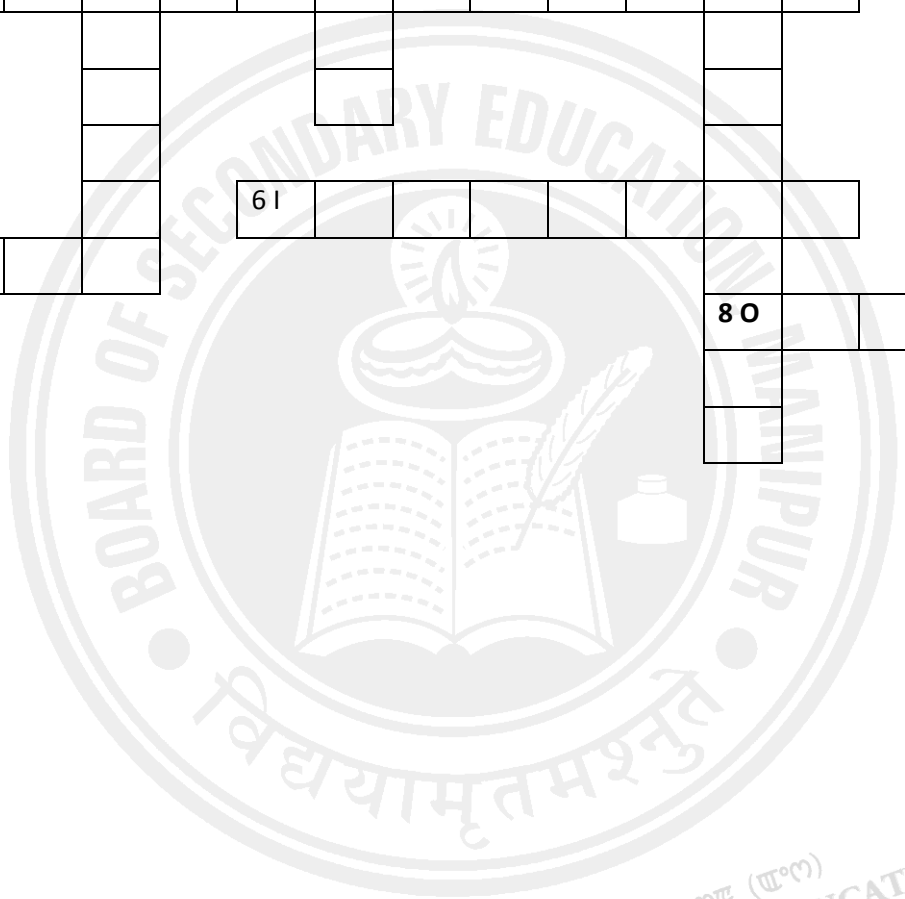
Across

1. The process of the fusion of the gametes.
6. The type of fertilisation in a 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 the fertilised egg.
4. These animals lay eggs.
5. A type of fission in Amoeba.

| | | | | | | | | | | | |
|-----|--|--|-----|--|--|-----|--|--|-----|-----|-----|
| 1 F | | | 2 T | | | 3 I | | | | 4 O | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | 5 B |
| | | | | | | 6 I | | | | | |
| 7 B | | | | | | | | | | | |
| | | | | | | | | | 8 O | | |
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EXTRA QUESTIONS AND ANSWERS:

Q 1. What are the male reproductive organs?

Answers: The male reproductive organs include

- i. A pair of testes
- ii. Two sperm ducts
- iii. Penis.

Q2. What are the female reproductive organs?

Answer: The female reproductive organs include

- i. A pair of ovaries,
- ii. Two oviducts (fallopian tubes)
- iii. Uterus (womb)

Q3. Where are sperms and egg/ovum produced?

Answer: Sperms – Testes

Egg/ovum - Ovary

Q4. What is Fertilisation?

Answer: The process of fusion of the male gamete sperm with the female gamete ovum to form Zygote is called fertilization.

Q5. Differentiate between viviparous and oviparous animals.

Answer: Animals which give birth to young ones are called viviparous animal. For examples: human, cow, cat etc.

Those animals which lay eggs are called oviparous animals. For Examples; hens, lizards etc

Q6. Describe the male reproductive organs of human being.

Answer:

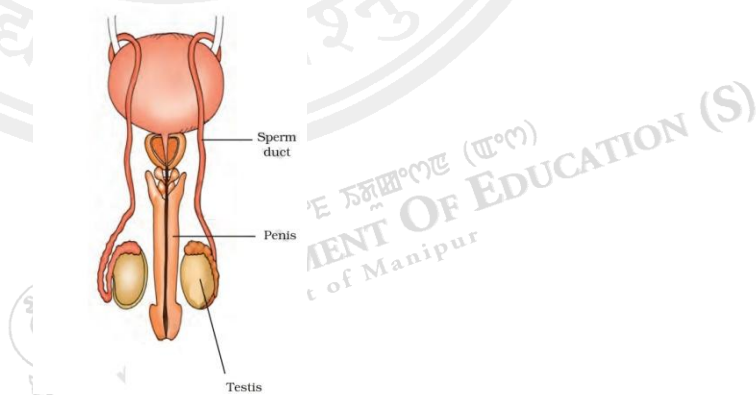


Fig: Male reproductive organs

The male reproductive organs include a pair of testes, two sperm ducts and penis. The testes produce the male gametes called sperm. The sperms are very small single celled consists of a head, a middle piece and a tail. Millions of sperms are produced by the testes

Q7. Describe the female reproductive organs of human being.

Answer:

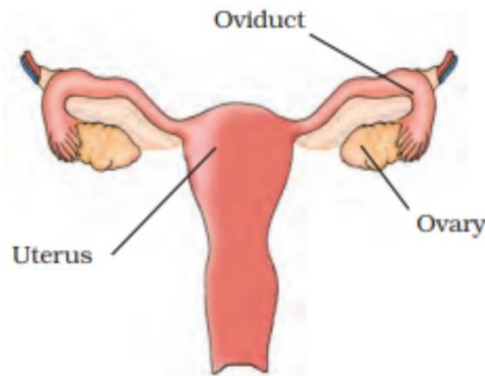


Fig: Female reproductive organs

The female reproductive organs include a pair of ovaries, two oviducts (fallopian tubes) and uterus. The ovary produces a female gamete called ova (egg). In human, a single matured single celled egg is released into the oviduct by one of the ovaries every month. Uterus or womb accommodates the embryo which develops into the foetus.

Q8. Explain the process of fertilisation in frogs.

Answer: During spring or rainy season, when the male and female come together in water, the female lays hundreds of eggs inside the water. These eggs are delicate and layer of jelly holds together to provide protection. At the same time male frog deposits sperms over them. Each sperm swim randomly and when come in contact with the egg fertilisation occurred. This type of fertilisation that takes outside the body of female is called external fertilisation.

Q9. What are the major disadvantages of External Fertilisation?

Answer: The major disadvantages of the External Fertilisation are:

- i. External Fertilisation requires an aquatic medium
- ii. A large number of gametes are left unfertilized and wasted due to exposed in water movement, wind and rainfall.
- iii. Each sperm swim randomly in water and might not come in contact with the eggs.
- iv. There are other animals in the pond or river that fed an eggs

Q10. Why do fish and frogs Lay eggs in hundreds whereas a hen lays only one egg at a time?

Answer: Though fish and frog lay hundreds of eggs, all the eggs do not get fertilised and develop into new individuals. This is because the eggs and sperms get exposed to water movement, wind and rainfall. Also there are other animals in the pond which feed on eggs.

So to protect their generation they have to lay thousands of eggs, whereas in case of a hen, internal fertilisation takes place and hence the survival of the chick which would hatch from the egg has much higher rates of survival as compared to those in case of a frog. Hence hen produces only one egg.

Q11. Explain the development of embryo in human body?

Answer: Fertilisation of an egg with a sperm results in the formation of zygote which begins to develop into an embryo. The zygote divides repeatedly to give rise to a ball of cells. The cells then begin to form groups that develop into different tissues and organs of the body. This developing structure is termed as embryo. This embryo gets embedded in the wall of the uterus and gradually develops body parts and stage of the embryo in which all the body parts can be identified is called a foetus. When the development of the foetus is complete the mother gives birth to the baby.



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