

**NCERT Exemplar Solutions for Class 8
Science (Biology)**

Chapter 9 - Reproduction in animals

Multiple Choice Questions

1. Sets of reproductive terms are given below. Choose the set that has an incorrect combination.

- (a) sperm, testis, sperm duct, penis**
- (b) menstruation, egg, oviduct, uterus**
- (c) sperm, oviduct, egg, uterus**
- (d) ovulation, egg, oviduct, uterus**

Ans: (c) sperm, oviduct, egg, uterus

The testis is responsible for the release of sperm. To ejaculate the sperm, the sperm duct opens up into the penis. During menstruation, the unfertilized egg is released via oviduct. In humans, sperm is discharged into the oviduct, where it fertilizes the egg, resulting in a zygote. The ovary produces eggs, which are then ovulated. Ovulation results in the release of the egg. The uterine tubes are also referred to as the oviduct.

Hence, option (c) is the right answer.

2. In humans, the development of fertilized eggs takes place in the

- (a) ovary**
- (b) testis**
- (c) oviduct**
- (d) uterus**

Ans: (c) oviduct

In humans, the fallopian tube is where the fertilized egg develops first (oviduct). After fertilization, the zygote enters the uterus on the third day (morula stage).

Hence, option (c) is the proper response.

3. In the list of animals given below, hen is the odd one out. human being, cow, dog, hen. The reason for this is

(a) it undergoes internal fertilisation.

(b) it is oviparous.

(c) it is viviparous.

(d) it undergoes external fertilisation.

Ans: (b) it is oviparous.

Hens reproduce by laying eggs. It lays eggs with a calcium-rich shell. Internal fertilization allows sperm to fertilize the egg without passing through a thick calcium shell. Hence, option (b) is the proper response.

4. Animals exhibiting external fertilisation produce a large number of gametes. Pick the appropriate reason from the following.

(a) The animals are small in size and want to produce more offsprings.

(b) Food is available in plenty in water.

(c) To ensure better chance of fertilisation.

(d) Water promotes production of large number of gametes.

Ans: (c) To ensure better chance of fertilisation.

The process of fusion of male and female gametes outside the body or in the environment is known as external fertilization. Since there are only a few

possibilities of fertilization when an animal releases gametes into the environment, a large number of male gametes are created to increase the chances of fertilization.

Hence, option (c) is the proper response.

5. Reproduction by budding takes place in

- (a) hydra**
- (b) amoeba**
- (c) paramecium**
- (d) bacteria**

Ans: (a) hydra

Budding is a form of asexual reproduction wherein the formation of a daughter from a tiny outgrowth on the parent body is termed bud. It can be found in sponges, coelenterates, yeast, and other organisms.

Hence, option (a) is the proper response.

6. Which of the following statements about reproduction in humans is correct?

- (a) Fertilisation takes place externally.**
- (b) Fertilisation takes place in the testes.**
- (c) During fertilisation egg moves towards the sperm.**
- (d) Fertilisation takes place in the human female.**

Ans: (d) Fertilisation takes place in the human female.

The female reproductive system is intended to facilitate a variety of purposes. It produces ova, necessary for reproduction. The system is set up to convey the ova to the fertilisation zone. Fertilisation occurs in the Fallopian tubes. The next step for fertilized eggs is to implant in the uterine walls and establish a pregnancy. Sperms can migrate past the cervix, into the uterus, and to the end of a fallopian tube after

they enter the vaginal tract. Fertilization occurs when sperm can combine with an egg.

Hence, option (d) is the proper response.

7. In human beings, after fertilisation, the structure which gets embedded in the wall of the uterus is

- (a) ovum
- (b) embryo
- (c) foetus
- (d) zygote

Ans: (d) zygote

The zygote is a single-celled entity that forms as a result of fertilization. A series of cell divisions occur in the zygote which results in the formation of a hollow cell mass known as the blastocyst.

Hence, option (d) is the proper response.

8. Aquatic animals in which fertilisation occurs in water are said to be:

- (a) viviparous without fertilisation.
- (b) oviparous with external fertilisation.
- (c) viviparous with internal fertilisation.
- (d) oviparous with internal fertilisation.

Ans: (b) oviparous with external fertilisation.

Fertilization occurs in water in aquatic animals. They release their gametes in water which further forms a zygote. They release their gametes in water which further forms a zygote. External fertilization is defined as fertilization that occurs outside

of the body, whereas oviparous animals are those that develop their embryos in the egg.

Hence, option (b) is the proper response.

9. After fertilisation, the resulting cell which gives rise to a new individual is the

- (a) embryo**
- (b) ovum**
- (c) foetus**
- (d) zygote**

Ans: (d) zygote

Male and female gametes combine to produce a zygote after fertilization. The zygote transforms to become a two-cell embryo. The embryo then divides into stages, resulting in the production of morula and blastula. The embryo gives birth to a new individual.

Hence, option (d) is the proper response.

10. In human beings, the correct sequence of events during reproduction is

- (a) gamete formation, fertilisation, zygote, embryo**
- (b) embryo, zygote, fertilisation, gamete formation**
- (c) fertilisation, gamete formation, embryo, zygote**
- (d) gamete formation, fertilisation, embryo, zygote**

Ans: (a) gamete formation, fertilisation, zygote, embryo

Male and female gametes fuse to produce a new progeny in the process of sexual reproduction. Human reproduction begins with the development of male and female gametes, which are then fertilized to produce an embryo.

Both male and female gametes go through a meiotic cell division during the production of gametes.

Fertilization happens when male and female gametes are transferred and fused, resulting in the development of a diploid zygote.

Hence, option (a) is the proper response.

Very Short Answer Questions

11. Although 2 cells called gametes fuse, the product formed is a single cell called zygote. Justify.

Ans: The sperm and the ovum merge during the fertilization process. In order to produce the zygote, the contents of the sperm cell are transported into the egg. Hence, the product is a single-celled zygote.

12. Stages in the life cycle of silkworm are given below. Write them in sequential order.pupa, silkworm, egg, silkmoth

Ans: The following is the right order of phases in the silkworm's life cycle:

Egg

↓

Pupa

↓

Silkworm

↓

Silkmoth

13. What is the importance of reproduction?

Ans: The immediate purpose of reproduction is to save the populations from extinction.

14. In markets, eggs of birds are available but never eggs of dogs. Why?

Ans: Dogs do not lay eggs, instead, they produce puppies. As a result, there are no dog eggs in the market.

15. The eggs of frogs do not have shells for protection, yet they are safe in the water. How?

Ans: The eggs are covered with a jelly-like substance by the female frog, which causes them to float to the water's surface and protects them from damages.

Short Answer Questions

16. Fill up the blanks with the terms given below: body, asexual, binary, single, nucleus

Amoeba is a _____ celled organism. It reproduces by _____ reproduction. The process of reproduction begins by the division of its _____ into two. This is followed by the division of its _____ into two. This type of reproduction is called _____ fission.

Ans: Amoeba is a **single** celled organism. It reproduces by **asexual** reproduction. The process of reproduction begins by the division of its **nucleus** into two. This is followed by the division of its **body** into two. This type of reproduction is called **binary** fission.

17. The term metamorphosis is not used while describing human development. Why?

Ans: Metamorphosis is a biological process in which an organism's form changes dramatically from one stage to the next in its life cycle, such as from the caterpillar to pupa and pupa to adult. Metamorphosis occurs in a variety of insects, fishes,

amphibians, cnidarians, tunicates, and many more. Metamorphosis is not something that humans go through.

18. Mother gives birth to a baby but the baby has characters of both parents. How is this possible?

Ans: Due to sexual reproduction, the child possesses the characteristics of both the mother and father. The process of sexual reproduction involves the fertilization of male and female gametes, which results in the development of a zygote.

As a result of the two parents' genetic material being combined, a new creature is created, and the child possesses the characteristics of both parents.

19. How is reproduction in hydra different from that in amoeba?

Ans: Budding is an asexual reproduction method in which a new organism emerges from a bud or protrusion on the parent's body. Budding is the method by which Hydra reproduces. In binary fission, the parent cell divides into two daughter cells, such as in Amoeba.

20. State whether the following statements are True or False. If false, correct the statement:

(a) External fertilisation can occur both in water and on land.

Ans: False. External fertilization is only possible in the water.

(b) The eggs of fish are covered by hard shells for protection.

Ans: False. Fish eggs are protected by a jelly-like material.

(c) Human egg has a head, middle piece and tail.

Ans: False. Human sperm consists of three parts: a head, a middle section, and a tail.

(d) In adult human females, a single mature egg is released into an oviduct every month.

Ans: True.

21. Why do only male gametes have a tail?

Ans: Male gametes (sperms) are motile. The tail helps the sperm swim through the female's reproductive tract and into the oviduct. The male reproductive system is where sperms are formed. Sperms are single-celled entities with a head, midsection, and tail. The acrosome, which is located at the tip of the sperm head, allows the sperm to reach the egg. The mitochondria, which provide the energy required for the tail to move, are located in the midpiece. To drive the sperm towards the egg, the tail swings back and forth in whip-like movements.

22. What does Fig. 9.1 represent?

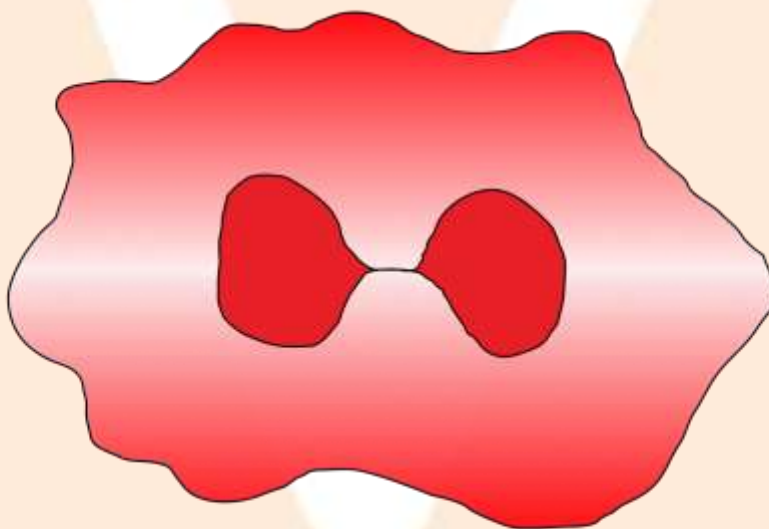


Fig. 9.1

Ans: This figure represents binary fission in the amoeba which involves the division of its nucleus into two followed by the division of its body into two.

23. Observe the figure given as Fig. 9.2 and answer the questions that follow.

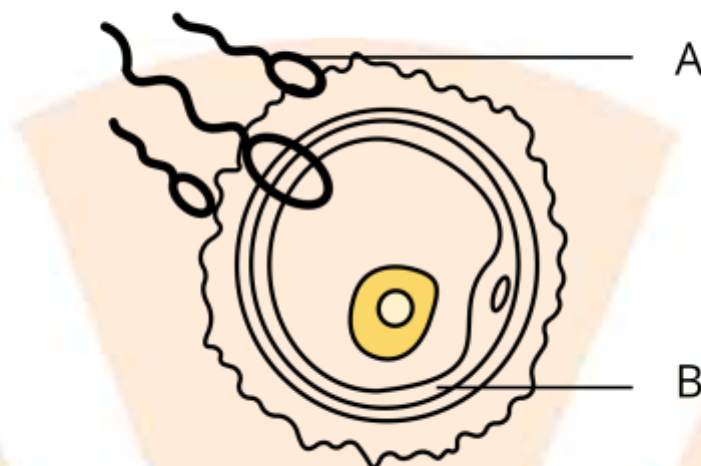


Fig. 9.2

(a) Label A and B.

Ans: A-Sperm B- Ovum

(b) Identify the process.

Ans: Fertilisation is the process.

(c) What happens during this process and what is formed?

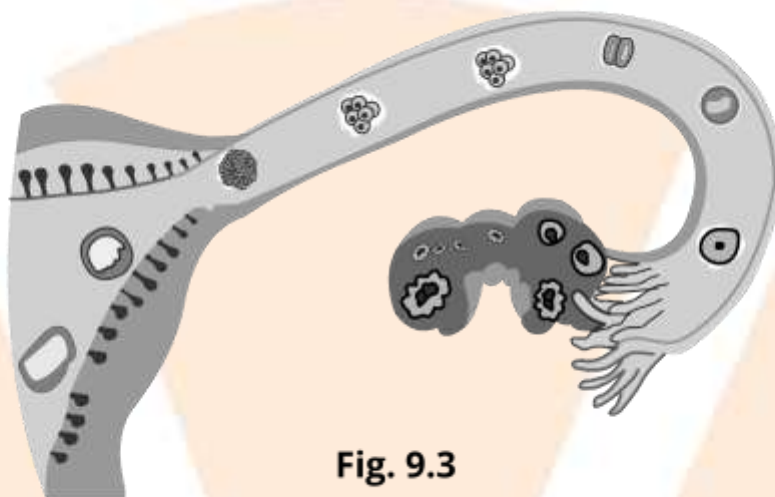
Ans: Fertilisation results in the formation of the zygote.

Long Answer Questions

24. How can we say that fish exhibits external fertilisation?

Ans: In an aquatic environment, external fertilization keeps the eggs from drying out. Male and female fish both release eggs and sperm into the sea. Sperm swim around in the water at random and come into contact with the eggs. The sperm nucleus travels into the egg and unites with it. External fertilization happens when fertilization takes place outside the female body, in water. Given that a vast majority of fish (>95 percent) experience external fertilization, it's only natural that the eggs develop outside the mother's body.

25.



After observing Fig. 9.3 answer the following.

a. Read the following statements and label them in the figure:

(i) The part which produces female gametes.

Ans: Ovary

(ii) The part where the development of the baby takes place.

Ans: Uterus

(iii) The part through which the developing embryo passes to reach the uterus.

Ans: Oviduct

b. Explain the future development of the embryo that would take place after it gets embedded in the uterus.

Ans: The zygote is formed once the egg and sperm have fused.

The blastula, which is lodged in the uterus, is formed by several divisions of the zygote. The embryo now proceeds through the gastrulation process, which results

in the formation of three germ layers: endoderm, mesoderm, and ectoderm. The placenta develops next. Mesoderm is also linked to trophoblast tissue from the umbilical cord, which transfers nutrients and wastes from the fetal circulation to the placenta. The embryo then grows and takes on a human look in the last stage.

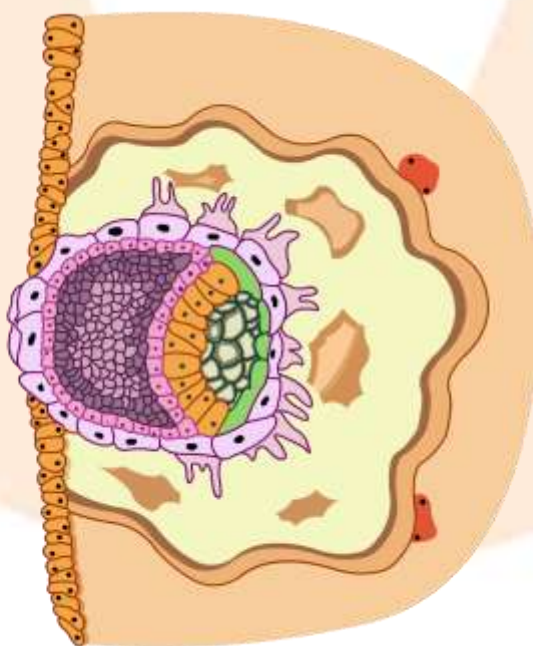
26. Hens and frogs are both oviparous exhibiting different types of fertilisations. Explain.

Ans: Internal fertilization occurs in hens. Inside the body, the fertilized egg grows into an embryo. The embryonic development of a chick, on the other hand, occurs outside the body.

Frogs are oviparous, which means that both zygote fertilization and embryo development take place outside the body.

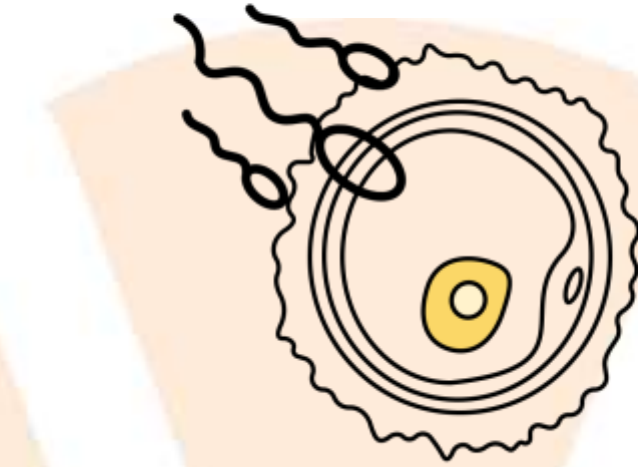
27. Observe the following figures.

(a)

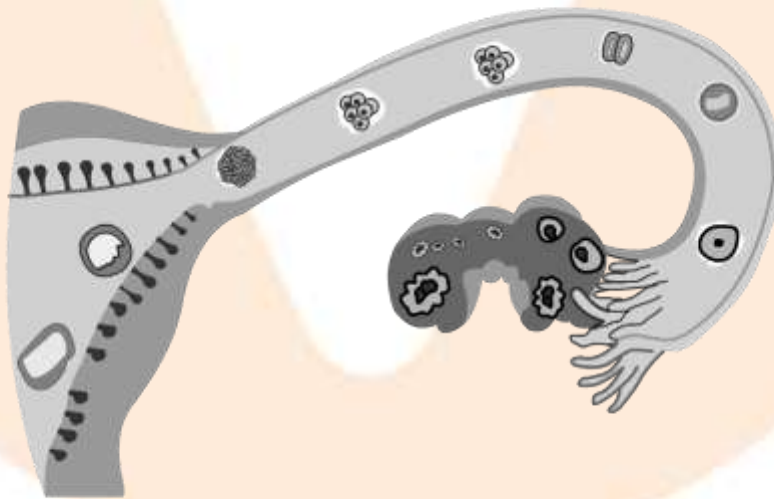


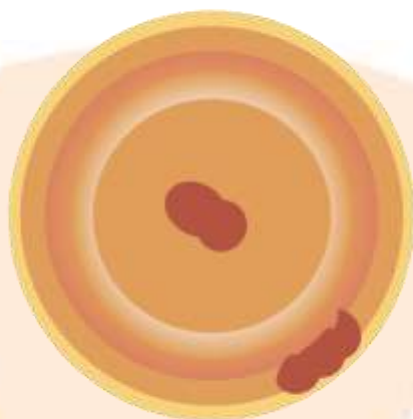
(b)

(c)



(d)





(i) Identify the stages (a) to (d) in Fig. 9.4 during the development of the human baby.

Ans: a) Embryo embedding in the uterus

b) Fertilisation

c) Zygote formation and embryo development

d) Zygote showing fusion of nuclei.

(ii) Arrange the stages in the correct sequence of development.

Ans: The correct sequence is as under:

(c), (b), (d), (a)

(iii) Explain the development that takes place in any one stage

Ans: Zygote formation