

CBSE Class 10 Science
NCERT Exemplar Solutions
Chapter 8
How Do Organisms Reproduce?

Long Answer Questions

49. Why are budding, fragmentation and regeneration all considered as asexual types of reproduction? With neat diagrams explain the process of regeneration in Planaria.

Ans. A single parent is involved and gamete formation does not take place in reproduction through budding, fragmentation and regeneration. Hence, all of these are considered as asexual types of reproduction.

Regeneration in Planaria: The body of planaria may get divided into many pieces. Each piece has the ability to develop complementary portion to become a new individual. The given figure shows a planaria getting divided into three pieces. Subsequently, each piece develops into a new individual.



Regeneration in Planaria

50. Write two points of difference between asexual and sexual types of reproduction. Describe why variations are observed in the offspring formed by sexual reproduction.

Ans.

Asexual Reproduction	Sexual Reproduction
A single parent is involved.	Two parents are involved.
Gametes are not formed.	Gametes are formed.

Variations are observed in the offspring formed by sexual reproduction, because of following reasons:

- Gene pool is contributed by two parents.
- Crossing over during meiosis results in variations.
- DNA replication also plays some role in variation.

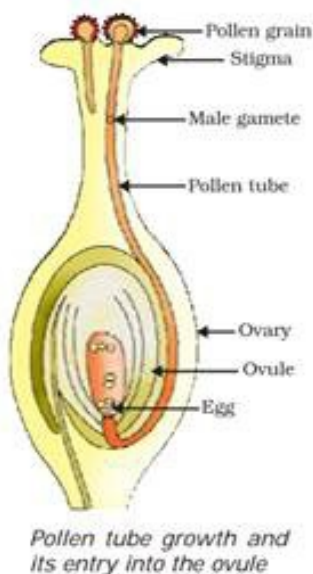
51. Distinguish between pollination and fertilisation. Mention the site and product of fertilisation in a flower. Draw a neat, labelled diagram of a pistil showing pollen tube growth and its entry into the ovule.

Ans.

Pollination	Fertilisation
Pollen grains are transferred from another to stigma.	Fusion of male and female gametes takes place.
Happens outside the ovary.	Happens inside the ovary.
It happens before fertilization.	It is the next step after pollination.

Site of fertilization: Ovary

Product of fertilization: Zygote



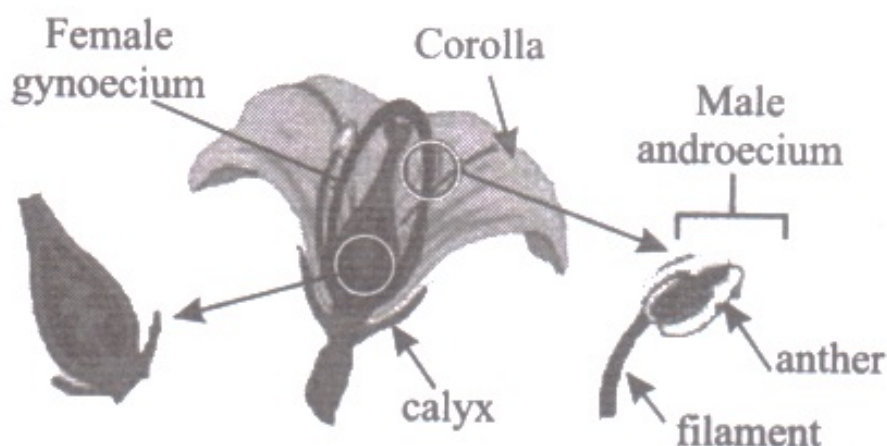
52. Distinguish between a gamete and zygote. Explain their roles in sexual reproduction.

Ans.

Gamete	Zygote
Formed after meiosis	Formed after fusion of two gametes.
Has haploid number of chromosomes.	Has diploid number of chromosomes.
Produced by male and female parts:	Formation takes place in female part.
Role in sexual reproduction: Gamete are necessary for sexual reproduction to take place, because zygote cannot be formed without gametes. Brings gene pool from two individuals.	Role in sexual reproduction: Zygote formation is a precursor of embryo formation.

53. Draw the diagram of a flower and label the four whorls. Write the names of gamete producing organs in the flower.

Ans.



- Ovary: Produces female gametes
- Anther: Produces male gametes

54. What is placenta? Mention its role during pregnancy?

Ans. Placenta is a disc-like structure embedded in the uterine wall. It contains villi on the

embryonal side. Blood spaces are present on the mother's side. Following are the functions of placenta:

- Supplying nutrients to the foetus.
 - Supplying oxygen to the foetus.
 - Taking away carbon dioxide from the foetus.
 - Taking away excretory products from the foetus.
-

55. What are various ways to avoid pregnancy? Elaborate any one method.

Ans. Various ways to avoid pregnancy are as follows:

(a) Physical barrier

(b) Copper -T

(c) Hormone pills

(d) Surgical procedure

Hormone Pills: Many hormones pills are available in the market. These pills stop ovulation and thus prevent conception. Many new pills are available which need to be taken in fewer number of doses. These are more convenient and have least side effects.

Copper T: Copper T is a very effective method of contraception. Its success rate in preventing pregnancy is high. It is inserted high in the uterus by a physician, and is effective for about 10 years. It does not provide protection against sexually transmitted diseases.

56. How does fertilisation take place? Fertilisation occurs once in a month. Comment.

Ans. In human beings, one egg is released from either of the ovaries once in a month. The egg is transferred to the fallopian tube from the ovaries. Sperms swim up to the fallopian tube. Only one sperm is able to penetrate the egg. That is how fertilization takes place.

A menstrual cycle is composed of about 28 days. This means only one egg is available for fertilization in one menstrual cycle. Hence, it can be said that fertilization can occur only once in a month.

57. Reproduction is essentially a phenomenon that is not for survival of an individual but for the stability of a species. Justify.

Ans. Survival of an individual depends on many factors. An individual can survive if he/she gets food and shelter. An individual can survive if he/she is not killed by a predator. An individual can survive if he/she is not killed by a competitor. In biological sense, an individual can survive if all the life processes continue in the body.

But reproduction creates a new individual and the new individual carries the lineage of the species even after the death of parents. Moreover, a good rate of reproduction ensures a large population which counterbalances mortality in the population. We know that a higher birth rate and lower mortality rate helps in growth of population. If mortality rate becomes more than birth rate, then a population can be wiped out. Thus, reproduction helps in maintaining the stability of a species.

58. Describe sexually transmitted diseases and mention the ways to prevent them.

Ans. Sexually Transmitted Diseases: Diseases which spread from one person to another through sexual act are called sexually transmitted diseases. The organisms that cause sexually transmitted diseases may pass from person to person in blood, semen, or vaginal and other bodily fluids.

HIV, Gonorrhoea, Herpes, etc. are examples of STDs.

Ways to prevent STDs:

- Use of condoms or other physical barriers.
- Avoiding sexual contacts with unknown partners.
- Avoid sharing towels or underclothing.
- Get a vaccination for hepatitis B. This is a series of three shots.