

Short Question Answer

Question. 1 (i) What is fertilization? Distinguish between external fertilization and internal fertilization.

(ii) What is the site of fertilization in human beings?

Answer.

(i) Fertilization is defined as the fusion of a male gamete (sperm) with a female gamete (an ovum or egg) to form a zygote during sexual reproduction.

External Fertilisation	Internal Fertilisation
(i) The fusion of male gamete (sperm) and female gamete (ovum) occurs outside the body.	(i) The fusion of gametes occurs inside the body.
(ii) Both individuals discharge their gametes outside the body.	(ii) Only the male discharges sperms into female genital tract.
(iii) Development occurs outside the body.	(iii) Development occurs inside the body.
(iv) Example: Frog.	(iv) Examples: Human, Birds, Cattle, etc.

(ii) The site of fertilization in human beings is in the fallopian tube of female reproductive system.

Question.2 Define the terms unisexual and bisexual giving one example of each.

Answer. Unisexual is the plant whose flowers contain either stamens or carpels but not both. Example: Papaya, Watermelon.

Bisexual is the plant whose flowers contain both stamens and carpels. Example: Hibiscus, Mustard.

Question.3 Differentiate between 'self-pollination' and 'cross-pollination'.

Describe double fertilization in plants.

Answer.

Self-pollination	Cross-pollination
(i) Self-pollination occurs within a flower or between two flowers of the same plants.	(i) Cross-pollination occurs between two flowers borne on different plants of the same species.
(ii) Flowers do not depend on other agencies for pollination.	(ii) Agents such as insects, water and wind are required for pollination.
(iii) Pollen grains are produced in small numbers.	(iii) Pollen grains are produced in large numbers.
(iv) No wastage of pollen grains occur and thus, economical.	(iv) Wastage of pollen grains occurs and hence, not economical.
(v) Flowers are not attractive nor do they produce nectar.	(v) Flowers attract insects by various means like coloured petals, scent and nectar.
(vi) The offsprings produced are of the same genetic make up, so purity of the race is maintained.	(vi) The offsprings produced may show variations and differ in genetic make up.

During fertilization in plants, the following events take place:

- (i) One of the male gamete fuses with the female gamete present in the embryo sac.
- (ii) The other male gamete fuses with the two polar nuclei in the embryo sac.

The first fusion product gives rise to the zygote while the second one forms the endosperm.

The process of two fusions occurring in the embryo sac is called double fertilization.

Question.4 What is ‘reproduction’? Mention the importance of DNA copying in reproduction.

Answer.

Reproduction is the process of producing new individuals of the same species by existing organisms of a species, i.e. parents. The importance of DNA copying in reproduction are as follows:

- (i) DNA copying is called DNA replication. In this process, one copy each of replicated DNA will be passed to daughter cells.
- (ii) Variations may be introduced during DNA copying. This inbuilt tendency for variation during reproduction forms the basis of evolution.

Question.5 “Variations that confer an advantage to an individual organism only will survive in a population.” Justify.

Answer.

It is because the chances of survival depend on the nature of variations and different individuals have different kinds of advantages.

For example, a bacteria that can withstand heat will survive better in a heat wave, i.e.

the organisms that are fit in the competitive environment and with great variations will be able to survive and adapt. Thus, more off springs and population with genetic variations will survive.

Question.6 Name one sexually transmitted disease each caused due to bacterial infection and viral infection. How can these be prevented?

Answer.

Sexually transmitted disease caused due to

- (i) Bacterial infection is gonorrhoea, and
- (ii) Viral infection is AIDS (Acquired Immune Deficiency Syndrome). These diseases can be prevented by responsible sexual behavior such as use of condom during intercourse, etc.

Question.7 (a) In the human body what is the role of (i) seminal vesicles, and (ii) prostate gland?
(b) List two functions performed by testis in human beings.

Answer.

(a) The role of seminal vesicles and the prostate gland are as follows:

- (i) Seminal vesicles produce seminal plasma which is in the form of fluid makes the transport of sperms smooth.
- (ii) Prostate gland secretes prostatic fluid that keeps the sperms alive and helps them to swim vigorously.

(b) Two functions performed by testis in human beings are as follows:

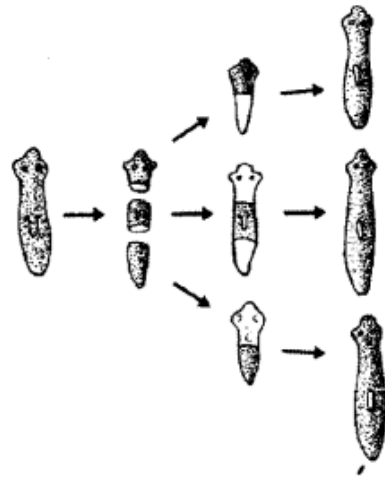
- (i) Formation of sperms takes place in testis.
- (ii) They secrete the hormone testosterone which regulates the formation of sperms and brings changes in appearance of boys at the time of puberty.

Question.8 Illustrate the following with the help of suitable diagrams:

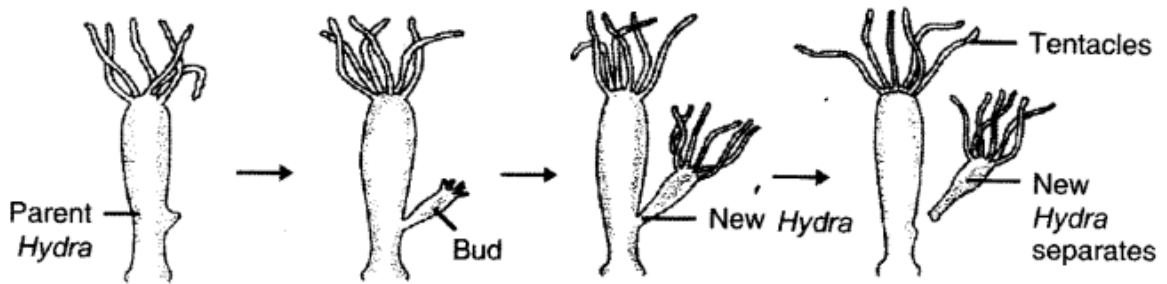
- (i) Regeneration in Planaria.
- (ii) Budding in Hydra.

Answer.

(i) Regeneration in *Planaria*



(ii) Budding in *Hydra*



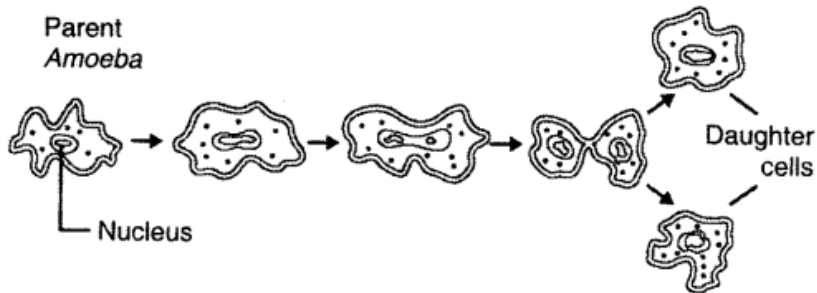
Question.9 Illustrate the following with the help of suitable diagrams:

(i) Binary Fission in Amoeba.

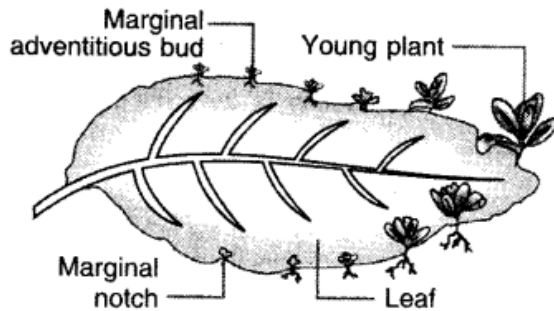
(ii) Leaf of Bryophyllum with buds

Answer.

(i) Binary Fission in *Amoeba*



(ii) Leaf of *Bryophyllum* with Buds



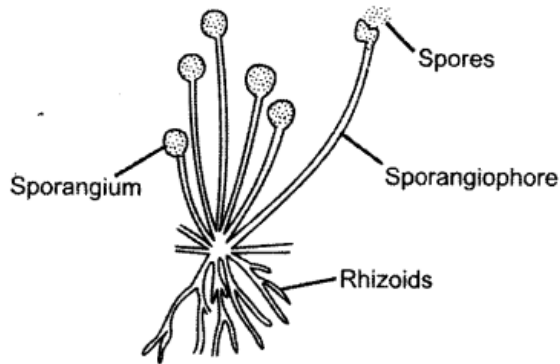
Question.10 Illustrate the following with the help of suitable diagrams:

(i) Spore formation in Rhizopus.

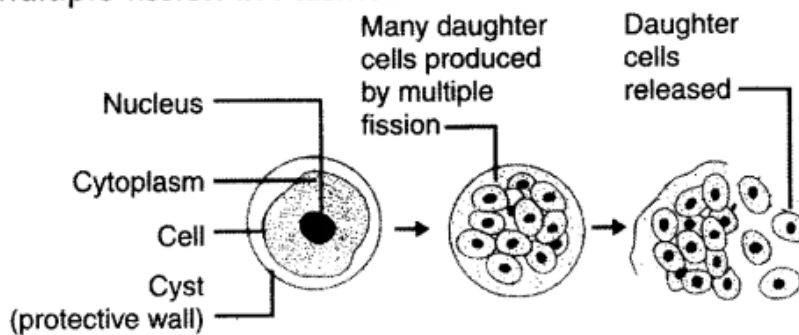
(ii) Multiple fission in Plasmodium.

Answer.

(i) Spore formation in *Rhizopus*



(ii) Multiple fission in *Plasmodium*



Question.11 What is regeneration? State a reason why a more complex organism cannot give rise to new individuals through this method.

Answer.

Regeneration is the ability of a fully differentiated organism to give rise to new individual organisms from its body parts. More complex organisms cannot give rise to new individuals through regeneration because:

- (i) their body is highly complicated.
- (ii) there are specific organs to do specific functions.
- (iii) there is a labor division in the body of complex organisms.
- (iv) regeneration is carried out by specialized cells which are not present in complex organisms.

Question.12 What is reproduction? What are its two types? Which one of the two confers new characteristics on the off springs and how?

Answer.

Reproduction is the process of producing new individuals of the same species by existing organisms of a species, parents. Its two types are: Asexual reproduction and Sexual reproduction.

Sexual reproduction confers new characteristics on the offspring due to variation in DNA copying.

Question.13 (a) Explain the terms:

(i) Implantation (ii) Placenta

(b) What is the average duration of human pregnancy?

Answer.

(a)

(i) Implantation: The embedding of a fertilized mammalian egg (embryo) into the inner thick wall of the uterus (womb) where it will continue its development is called implantation.

(ii) Placenta: It is a complex double-layered spongy vascular tissue in human female formed by the joint activity of maternal and fetal tissues in the wall of uterus that is meant for attachment, nourishment and waste disposal for the fetus

(b) The average duration of human pregnancy is 40 weeks or 280 days.

Question.14 What are sexually transmitted diseases?

Name four such diseases. Which one of them damages the immune system of human body?

Answer.

Sexually Transmitted Diseases (STDs) are the diseases which are spread by sexual contact from an infected person to a healthy person. They are caused by various microorganisms that live in warm and moist environments of the vagina, urethra, anus and mouth.

The four sexually transmitted diseases are:

(i) Gonorrhoea

(ii) Syphilis

(iii) Trichomoniasis

(iv) AIDS (Acquired Immune Deficiency Syndrome).

AIDS damages the immune system of human body.

Question.15 List any four reasons for vegetative propagation being practised in the growth of some type of plants.

Answer.

(i) Vegetative propagation is a cheaper, easier and more rapid method of propagation in plants than growing plants from their seeds.

(ii) Better quality of plants can be maintained by this method.

(iii) It results in propagation of those plants which do not produce viable seeds or produce seeds with prolonged period of dormancy.

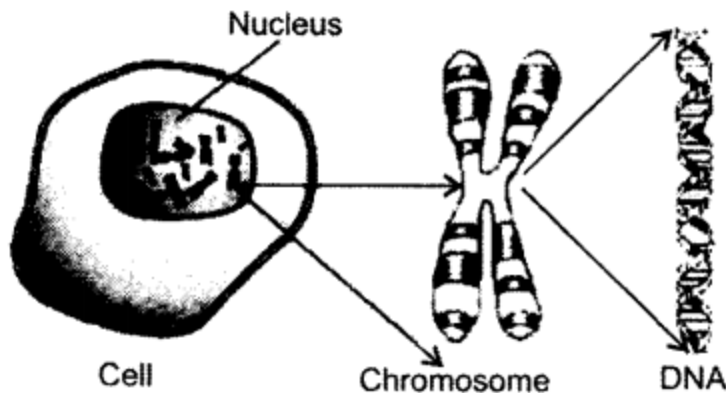
(iv) The plants generated from vegetative means are more uniform and genetically similar to the parent stock.

Question.16 Write the full form of DNA. Name the part of the cell where it is located. Explain its role in the process of reproduction of the cell.

Answer.

The full form of DNA is deoxyribonucleic acid. It is the genetic material found in the chromosomes, which are present in the nucleus of a cell.

Role of DNA in the process of reproduction of the cell:



DNA plays an important role in the reproduction of a cell. The reproducing cell produces an identical copy of DNA through some cellular mechanism. Since the newly formed copy of DNA lacks an organized cellular structure, the cell gets divided to provide cell cover to the newly formed DNA. Thus, two daughter cells are formed from the single cell as a result of the copying of DNA.

Question.17 List any three differences between pollination and fertilization.

Answer.

Pollination	Fertilisation
(i) It is the transfer of pollen grains from anther to the stigma of a flower.	(i) It is the fusion of male and female gametes.
(ii) Pollination precedes fertilisation.	(ii) Fertilisation occurs only after pollination when the pollen grains has germinated and sent the male gametes to ovule.
(iii) Pollination carries the male gamete producing pollen grains to the female sex organ.	(iii) Fertilisation brings about fusion of gametes.

Question.18 What does HIV stand for? Is AIDS an infectious disease? List any four modes of spreading AIDS.

Answer.

HIV stands for Human Immunodeficiency Virus.

Yes, AIDS is an infectious disease.

Four modes of spreading AIDS are as follows:

- (i) By having sexual contact with an infected person.
- (ii) By the transfusion of blood from an infected person.
- (iii) Through infected needles used for injection.
- (iv) Through the placenta from the mother to child during pregnancy.

Question.19 Expand AIDS. List any four methods of prevention (control) of AIDS.

Answer.

AIDS stands for Acquired Immune Deficiency Syndrome.

Four methods of prevention or control of AIDS are as follows:

- (i) Use condom during sex.
- (ii) Avoid sharing of needles.
- (iii) Test blood for AIDS before transfusion.
- (iv) Avoid sexual contact with unknown person.

Question.20 (a) List any four reasons for adopting contraceptive methods.
(b) If a woman is using Copper-T, will it help in protecting her from sexually transmitted diseases? Why?

Answer.

- (a) Four reasons for adopting contraceptive methods are:
- (i) To increase the gap between, two children.
 - (ii) To prevent unwanted pregnancy.
 - (iii) To prevent transmission of STDs.
 - (iv) To control population growth.
- (b) If a woman is using a copper-T, it will not help in protecting her from sexually transmitted diseases. Copper-T prevents only implantation in the uterus.

Question.21 State one genetically different feature between sperms and eggs of humans. What is its consequence?

Answer.

The sex chromosome of human male is XY. A sperm of human male carries either an X chromosome or one Y chromosome.

The sex chromosome of human female is XX and hence, the egg always carries the X

chromosome.

If a sperm carrying X chromosome fertilizes an egg which carries X chromosome, then the child born will be a girl. If a sperm carrying Y chromosome fertilizes an egg which carries X chromosome, then the child born will be a boy.

Question.22 List two advantages of vegetative reproduction practiced in case of an orange plant.

Answer.

Two advantages of practicing vegetative reproduction in orange plants are:

- (i) The oranges produced are similar in size and shape.
- (ii) Many oranges do not produce viable seeds and hence, vegetative method is good alternative.

Question.23 How does growing embryo get nutrition from the mother's blood?

Answer.

The embryo gets nutrition from the mother's blood with the help of a special tissue called placenta. This is a disc which is embedded in the uterine wall and transfers glucose and oxygen from the mother to the embryo.

Question.24 Define the term puberty. List two changes observed in girls at the time of puberty.

Answer.

The period, when the rate of general body growth begins to slow down and reproductive tissues begin to mature, is called puberty.

Two changes observed in girls at the time of puberty are:

- (i) The breast size begin to increase, (ii) Menstruation starts.

Question.25 What is meant by asexual reproduction? List its any two different forms.

Answer.

Asexual reproduction is the process of producing new organism from a single parent without the involvement of sex cells. Fission and fragmentation are two different forms of asexual reproduction.

Question.26 Name an organism which reproduces by spore formation. List three conditions

favorable for spores to germinate and grow.

Answer.

Rhizopus reproduces by spore formation. Conditions favorable for spore formation are:
(i) Cool place, (ii) Moist place and (iii) Dark place.

Question.27“DNA copies generated during reproduction will be similar but may not be identical to the original.” Justify this statement.

Answer.

DNA copies generated will be similar, but may not be identical to the original as some variations are so drastic that new DNA copy cannot work with the cellular apparatus it inherits. Such a newborn cell will simply die. Therefore, there could be many other variations in the DNA copies that would not lead to such a drastic outcome. Thus, the surviving cells are similar but slightly different from each other. This tendency of variation during reproduction is the basis for evolution.

Question.28 List two advantages of practicing vegetative propagation in plants. Select two plants raised by this method from the list given below:

Banana, Gram, Pea, Rose, Tomato, Wheat.

Answer.

Advantages of vegetative propagation are:

1. Plants raised by vegetative propagation can bear fruits and flowers earlier.
2. Plants produced are genetically similar.
Banana and Rose can be raised by vegetative method.

Question.29 List and explain in brief three methods of contraception.

Answer.

Methods of contraception are:

1. Use of condom for penis or for vagina as a mechanical barrier for the sperms to reach the egg.
2. Use of oral pills which change the hormonal balance so that eggs are not released.
3. Surgical method where either the vas deferens of male is blocked or the fallopian tube of female is blocked.

Question30 What is AIDS? Which microbe is responsible for AIDS infection? State one mode of transmission of this disease. Explain in brief one measure for

the prevention of AIDS.

Answer.

AIDS is the Acquired Immune Deficiency Syndrome.

It is caused by a virus called Human Immunodeficiency Virus.

AIDS is transmitted by sexual contact with an infected person.

AIDS can be prevented by avoiding sexual contact with infected person or by using condom during sex.