

Test yourself: Biology Chapter - How Do Organisms Reproduce Class 10

One mark Questions

1. Name the information source for making proteins. In what respect is the human male gamete different from the female gamete?
2. DNA copies generated will be similar, but may not be identical. Why is it so?
3. Plants like rose, banana and jasmine are grown by vegetative means. Why?
4. How does sexual reproduction help in maintaining the chromosome number of a species constant from generation to generation? (HOTS)
5. What is the function of stigma?

Two marks Questions

6. Why are testes located outside the abdominal cavity?
7. How does a human foetus derive its nutrition?

Three marks Questions

8. What is the role of the seminal vesicles and the prostate gland?
9. Give an advantage of vegetative propagation.

Five marks Questions

10. Explain what happens when: (a) Testosterone is released in males (b) Pollen grain falls on the stigma of the flower. (c) Egg fuses with sperm cell. (d) Planaria is cut into many pieces. (e) Buds are formed on the notches of the Bryophyllum leaf.
11. Differentiate between the following :
(a) Pollen tube and Style (b) Fission in *Amoeba* and *Plasmodium* (c) Fragmentation and Regeneration
(d) Bud of *Hydra* and bud of *Bryophyllum* (e) Vegetative propagation and Spore formation
12. Answer these Questions (a) Give one example of each unisexual and bisexual flower (b) Mention the changes a flower undergoes after fertilization (c) How does the amount of DNA remain constant though each new generation is a combination of DNA copies of two individuals?
13. What is the main difference between sperms and eggs of humans? Write the importance of this difference.
14. Name the part where (i) eggs develop. (ii) Fertilisation takes place. (iii) Fertilised egg gets implanted.
(b) Describe, in brief, the changes the uterus undergoes. (i) to receive the zygote. (ii) if zygote is not formed.
15. Name the following parts:
(i) Part that produces pollen grain (ii) Part that transfers male gametes to the female gametes
(iii) Part that is sticky to trap the pollen grain (iv) Part that develops into a fruit
16. There are a number of ways by which the genes enter a population. Explain briefly the three ways.

Test yourself: Solution- Chapter - How Do Organisms Reproduce Class 10

Answer:

1. DNA . Male gametes (sperms) are mobile and smaller in size while female gamete (ovum) is immobile and bigger in size.
2. This is because the process of copying the DNA will have certain variations each time.
3. This is because they have lost the capacity to produce viable seeds.
4. Male & female gametes have only half the number of chromosomes & half the amount of DNA. The fusion of these germ cells during sexual reproduction results in re-establishment of the number of chromosomes.
5. Stigma receives pollen grains during pollination & provides the nutrients necessary for pollen germination.
6. This is because sperm formation requires a temperature lower than that of the normal body temperature.
7. The human foetus gets nutrition from the mother's blood through a special tissue called placenta. This is a disc which is embedded in the uterine wall. It contains villi on the embryo's side of the tissue. On mother's side are blood spaces which surround the villi. This provides a large surface area for nutrients to pass from the mother to the embryo.
8. Seminal Vesicle: Its secretion form a major part of the semen (60%). Its secretion is alkaline in nature which neutralizes the effect of acid in the female genital tract. It has fructose sugar which provides nutrition and energy to the sperm.
Prostate gland: Its secretion form 13-33% of semen. It helps in sperm motility and viability(chances of striking the ovum).
Cowper 's gland: Its secretion lubricates the end of male reproductive part during copulation.
9. (i) Propagation of plants which have lost the capacity to produce seeds (ii) Plants raised by this method can bear fruits earlier (iii) Produce genetically similar plants
10. (a) Secondary sexual characters (b) Pollen tube formed for fertilization (c) Fertilization (d) Each part grows into a new organism (e) Fall on the soil and forms new plants
11. (a) Pollen tube – Carries male germs cell Style – Carries pollen tube
(b) Fission in Amoeba – Binary fission Plasmodium – Multiple fission
(c) Fragmentation – Simple multicellular organisms Regeneration – Complex multicellular organisms
(d) Budding Vegetative propagation
(e) Vegetative propagation – Formation of new plants from leaves, root and stem
Spore formation – reproduction by spores

12. (a) unisexual flowers : Papaya, Watermelon, Corn, etc.

bisexual flowers : Mustard, rose, lily, hibiscus, etc.

(b) After fertilization the petals, stamen and carpel fall off and only sepal, ovary and ovule remain. This is because after fertilization the ovary develops into fruit and protect the seeds, these seeds are actually fertilized ovule. But, carpels and petals do not have any role after fertilization so they fall off. After fertilization, the outer layers of the ovule become

impervious, hard and function as a seed coat. An ovule with an embryo inside is called a seed .

(c) In sexual reproduction the gametes usually contain half number of chromosomes compared to the chromosome gametes and some numbers present in the body cells. These haploid gametes when fuse produce a new cell with double number of chromosomes than the gametes and same as the body cells. In this way organisms restrict doubling of DNA and maintain the chromosome number.

13. Sperm has Y chromosome as sex chromosome, while egg has X chromosome as sex chromosome. Human eggs are much larger than sperms and are highly metabolically active cells. They contain more amount of cytoplasm. Importance of the difference: The difference in the sperm and egg cells maintains the continuity of the species generation after generation by the process of reproduction.

14.(a) (i) The development of egg occurs in the ovary. (ii) Fertilisation takes place in the fallopian tubes.

(iii) The fertilised egg gets implanted in the uterus.

(b) (i) The uterus prepares itself every month to receive a fertilised egg/zygote. The inner uterus lining (endometrium) becomes thick and is supplied with blood to nourish the embryo.

(ii) If the egg is not fertilised, then the uterus lining is not required. Hence, it breaks down and gets released in the form of blood and mucous through the vagina. This process lasts for 2–8 days. This cycle occurs every month and is known as menstruation.

15. (i) Part that produces pollen grain: anther (ii) Part that transfers male gamete to the female gamete: style (iii) sticky part to trap pollen grain: stigma (iv) Part that develops into fruit: Ovary (b) Pollination

16. Gene flow refers to the transfer of alleles from one population to another as a result of interbreeding between members of two populations.

Mutation: Mutation are the sudden change that takes place in the DNA sequence of an organism.

Migration: Migration will change gene frequencies by bringing in more copies of an allele already in the population or by bringing in a new allele that has arisen by mutation.