1. What is DNA ?
   Ans. DNA is the carrier of hereditary information from parents to the next generation. Hereditary material is present in all living cells.
2. Name the method by which spirogyra reproduces under favourable conditions. Is this method sexual or asexual ?
   Ans. Fragmentation, Asexual
3. Name the type of reproduction mostly seen in unicellular organisms.
   Ans. Asexual reproduction.
4. Name the plant that reproduces vegetatively by leaf.
   Ans. Bryophyllum.
5. Name two simple organisms having the ability of regeneration.
   Ans. Planaria and Hydra.
6. How does Plasmodium reproduce. Is this method sexual or asexual ?
   Ans. Plasmodium reproduces by a process known as multiple fission. Multiple fission is a type of asexual reproduction.
7. Name the causative agent of the disease "Kala azar" and its mode of asexual reproduction.
   Ans. Leishmania, Binary fission
8. Name the part of Bryophyllum where the buds are produced for vegetative propagation.
   Ans. Leaf notches.
9. Name the life process of an organism that helps in the growth of its population.
   Ans. Reproduction.
10. Newly formed DNA copies may not be identical at times. Give one reason.
    Ans. If there is an error in DNA copying then newly formed DNA copies may not be identical at time.
11. What are those organisms called which bear both the sex organs in the same individual ? Give one example of such organism.
    Ans. Bisexual; Example, Hydra/Earthworm/Mustard/Hibiscus.
12. Name the method by which Hydra reproduces. Is this method sexual or asexual ?
    Ans. Hydra reproduces by Budding. It is an asexual reproduction.
13. An organism which is a worm has very simple eyes, that are really eye spots which detect light. Name the organism.
    Ans. Planaria.
14. Mention the mode of reproduction used by(i) Amoeba (ii) Planaria.
    Ans. Mode of reproduction used by (i) Amoeba is Binary fission.(ii) Planaria is Regeneration.
15. What happens when a Planaria gets cut into two pieces ?
    Ans. When a Planaria gets cut into two pieces, each piece regenerates into a new Planaria.
16. What happens when a mature Spirogyra filament attains considerable length ?
    Ans. Its filament breaks up into smaller fragments or pieces, and each fragment grows into a new individual.
17. State the method used for growing rose plants and jasmine plants.
    Ans. (i) Artificial methods of vegetative propagation like cutting are used to grow rose plants.(ii) Artificial methods of vegetative propagation like layering is used for growing jasmine plant.
18. Why is DNA copying necessary during reproduction ?
    Ans. DNA copying is necessary during reproduction because it leads to the transmission of characters from parents to offsprings and variations.
19. Malarial parasite divides into many daughter individuals simultaneously through multiple fission. State an advantage the parasite gets because of this type of reproduction.
    Ans. Progeny is identical like parent and single individual can reproduce in large number.
20. "Cell division is a type of reproduction in unicellular organism". Justify.
    Ans. During cell division in unicellular organisms, the nucleus of the parent cell divides only once to form two daughter nuclei along with the cytoplasm that undergoes cleavage. In this way, two daughter cells are formed from one single parent.

21. Name the information source of making proteins in the cell. State two basic events in reproduction.
    Ans. The DNA in the cell nucleus is the information source of making proteins.
    The two basic events of reproduction are :(i) Creation of a DNA (ii) Additional cellular apparatus by the cell involved in the process.
22. What is the function of petals in a flower ?
    Ans. The functions of petals is to attract insects for pollination and to protect the reproductive organs, which are at the centre of the flower.
23. List two unisexual flowers.
    Ans. Watermelon, papaya.
24. Name the parts of a bisexual flower that are not directly involved in reproduction.
    Ans. Sepals/calyx
    Petals/corolla
    Thalamus
25. State the number of male gametes produced by each pollen grain.
    Ans. Each pollen grain produced two male gametes.
26. Why is fertilization not possible without pollination ? OR Why cannot fertilisation take place in flowers if pollination does not occur ?
    Ans. Pollination allows pollen grains that produce male germ cell to reach the carpel which contain the female germ cell, egg. Thus fertilization which involves fusion of male and female germ cells can only occur after pollination.
27. What is fertilisation ? Where does it occur in a human female ?
    Ans. Fission of male and female gamete is known as fertilization. It occurs in fallopian tube.
28. List two functions of ovary of human female reproductive system.
    Ans. Two functions of Ovary :(i) To Produce female gamete / ovum. (ii) To secrete female hormones / estrogen and progesterone.
29. Name the organs producing sperms and ova respectively in humans.
    Ans. Testis : Sperms, Ovary : Ova.
30. Name the organs producing sperms and ova respectively in humans.
    Ans. Testis : Sperms, Ovary : Ova.
31. Name the parts where sperms are formed in a male's body and eggs are formed in female's body.
    Ans. Sperms are produced in testes and eggs are produced in ovary.
32. Give reason for the statement–Since the ovary releases one egg every month, the uterus also prepares itself every month by making its lining thick and spongy.
    Ans. It is required for nourishing the embryo if fertilization takes place and reaches the uterus.
33. No two individuals are absolutely alike in a population. Why ?
    Ans. Because hundreds of biochemical reactions occur during preparation of DNA copies. Few of them are liable to run and form a different product and hence they are not identical to the original. Thus, this gives rise to variations.

Short Answer Type Questions

(i) What is meant by vegetative propagation?

(ii) How will a plant be benefitted if it reproduces by vegetative propagation ?

Ans. (i) Propagation by parts such as the root, stem and leaves.

(ii) Plants raised by vegetative propagation can bear flowers and fruits earlier than those produced from seeds. Such method also makes possible the propagation of plants that have lost the capacity to produce seeds.

List four advantages of vegetative propagation.

Ans. (i) Only one parent is required for reproduction, this eliminates the need of special mechanisms.

(ii) Many plants are able to tide over unfavourable conditions.

(iii) Plants that do not produce seeds are propagated by this method.

(iv) The trait of the parent plant is preserved.

List four modes of asexual reproduction.

Ans. Four modes of asexual reproduction are :(i) Binary fission (ii) Budding (iii) Multiple fission (iv) Fragmentation.

Write two differences between binary fission and multiple fission in a tabular form. OR How does binary fission differ from multiple fission ?

Ans. Two differences between binary fission and multiple fission are :

S. No.	Binary Fission	Multiple Fission
(i)	It is the division of one cell into two similar or identical cells.	It is the process, in which many individuals are formed from a single individual.
(ii)	The nucleus first divides amitotically into two, followed by the division of the cytoplasm.	The nucleus of the cell divides repeatedly, producing many nuclei.

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What is the importance of DNA copying in reproduction ?

Ans. DNA is a macromolecule present in the chromosome. Genes are segments of the DNA. DNA has the information to create proteins which lead to body design of the organism. If a similar individual has to be reproduced, the DNA should replicate to make an exact copy of itself.

(i) How do Leishmania and Plasmodium reproduce?

(ii) State one difference in their mode of reproduction.

Ans. (i) Leishmania reproduces by binary fission and Plasmodium reproduce by multiple fission.

List two advantages of growing grapes or banana plants through vegetative propagation.

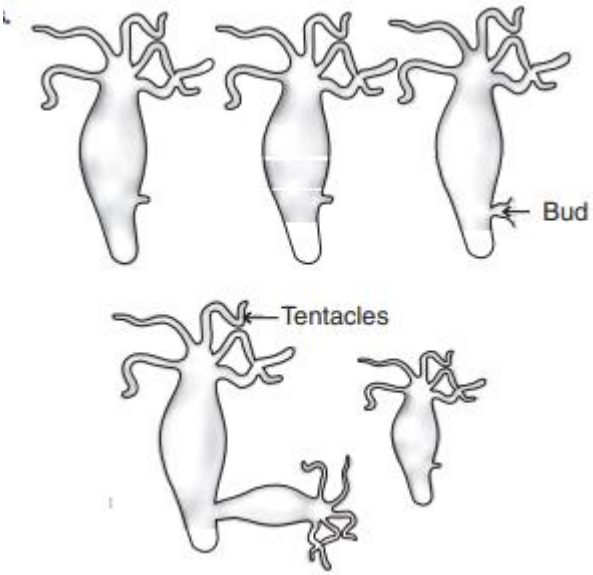
Ans. (i) Vegetative propagation is the only known method of multiplication of seedless plants, which gives a genetically uniform population.

(ii) Seeds and fruits are of uniform quantity, size taste and aroma and have a good quality of variety.

How is the process of binary fission different in Amoeba and Leishmania ?

Ans. Amoeba reproduces through simple binary fission. Leishmania reproduces asexually through binary fission that occurs along a definite orientation related to the whip like structure at one end of the cell.

Draw a labelled diagram to illustrate budding in Hydra.



Fallen leaves of 'Bryophyllum' on the ground produce new plants whereas the leaves of rose do not ? Explain this difference between the two plants.

Ans. In Bryophyllum, vegetative propagation occur through leaves where buds occur. Rose leaves do not form buds.

Explain giving one example of each, the unisexual and bisexual flowers.

Ans. 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.

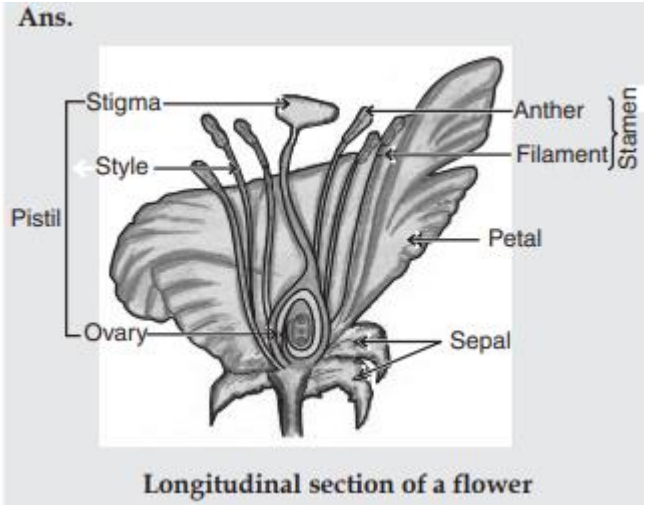
(i) What is the fate of the ovules and the ovary in a flower after fertilization ?

(ii) How is the process of pollination different from fertilization ?

Ans. (i) After fertilization, ovules become seeds and ovary forms the fruit. (ii) Pollination is the transfer of pollen grains from anther to the stigma of a flower. Fertilization is the fusion of male and female gametes

Draw a labelled longitudinal structure of a flower showing its parts

Ans.



Longitudinal section of a flower

What is the main difference between sperms and eggs of humans ? Write the importance of this difference. [

Ans. Difference between sperms and eggs of humans : The major genetic differences lies in the difference in sex chromosome of sperm (male gamete) and egg (female gamete). Sperm has Y chromosome as sex chromosome, while egg has X chromosome as sex chromosome. 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.

List two preparations shown every month by the uterus in anticipation of pregnancy in humans.

Ans. Uterus by undergoing cyclic changes prepares itself for receiving the zygote and supporting its further growth into foetus every month in anticipation of pregnancy. The inner layer of uterus called endometrium becomes thickened to support the growth of foetus.

Mention the two functions of human testes. OR What are the functions performed by the testis in human beings ?
Ans. (i) Testes produce sperm. (ii) Testes produce male sex hormone called testosterone.

What is the role of seminal vesicles and prostate gland in Human male reproductive system?

Ans. Seminal vesicles are a pair of thin walled muscular sac which secretes fluid for nourishment of Sperms. Prostate gland provides nourishment and transportation of sperm.

State the importance of chromosomal difference between sperms and eggs of human.

Ans. Sperms contain two types of chromosomes i.e., X— chromosomes and Y—chromosomes. Egg contains one type of chromosomes only i.e., X—chromosome.

Identify among the following organism which is reproduced by sexual and which by asexual method. Amoeba, human beings, whale, Hydra, dog, Spirogyra.

Ans. Sexual reproduction—Dog, whale, human. Asexual reproduction—Amoeba, Hydra, Spirogyra.

Write two functions of each (i) Testis, (ii) Ovaries.

Ans. Two functions are : (i) Testis : It produces sperms and secretes male sex hormones called testosterone. (ii) Ovary : It produces ovum and secretes female sex hormones called estrogen and progesterone.

Explain why does menstruation occur in human females ?

Ans. Every month uterus prepares itself to receive fertilized egg. Its lining become thick to provide nutrition to embryo, if fertilization of egg takes place. If fertilization of egg does not take place then lining is no longer needed and it gets detached and comes out through the vagina along with blood and mucus.

Mention the functions of (a) placenta, (b) fallopian tube in the human female reproductive system. [

Ans. (a) Placenta : (i) Helps in the transportation atom of glucose and oxygen from the mother to the embryo. (ii) Waste generated by the embryo is removed by transferring it to the mother's blood. ½ (b) Fallopian tube : (i) Egg is carried from the ovary to the uterus. (ii) Fertilization occurs here.

How does the embryo get nourishment inside the mother's body ?

Ans. The embryo gets nourishment 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. It contains villi on the embryo's side of the tissue. On the mother's side are the blood spaces, which surround the villi. This provides a large surface area for glucose and oxygen to pass from the mother to the embryo.

List any two contraceptive methods practised only by women. Mention how these methods work?

Ans. (i) Oral pills : Change hormonal balance so eggs are not released. (ii) Loop / Copper-T : Placed in the uterus. Prevent pregnancy by checking the entry of sperms through the vagina