Chapter.1
Reproduction in Organisms
Class – XII
Subject –Biology

1. Why is reproduction essential for organisms?

Answer 1.

Reproduction is essential for organism because through reproduction we can reproduce our young ones who are similar to us in most of our characters. Reproduction enables us to continue the life of species even after our death.

2. Which is better mode of reproduction sexual or asexual?

Answer 2.

Sexual mode of reproduction is better mode than asexual because in sexual mode there is fusion of male and female gametes through which we get variation in offspring as compared to their parents.

3. Why is offspring formed by asexual reproduction referred to as clone?

Answer 3.

In asexual reproduction there is no fusion of gamete as only single parent can produce their young ones. That's why young one produced is morphologically

and genetically identical to their parent and simply referred as clone.

4. Offspring formed due to sexual reproduction have better chances of survival, why? Is this statement always true?

Answer 4.

Sexual reproduction involves fusion of male and female gametes. In the process of formation of zygote there are exchange of genes and traits between gametes. In the process of crossing- over and segregation of chromosomes, there are much more chances of elimination of unfavorable traits from offspring, as a result the offspring will not be identical to its parents and will have a better chance of survivaval.

No if the mother is suffering from any major disease like aids, then the offspring will not survive.

5. How does the progeny formed from asexual reproduction differfrom those formed by sexual reproduction?

Answer 5.

In asexual reproduction, only single parent is involved in producing offspring. There are no exchange of genes and traits. Offspring produced is identical to his parent.

While, In sexual reproduction, two parents are involved. There is fusion of male and female gametes and exchange of genes. Thus offspring produced are genetically different from his parents.

6. Distinguish between asexual and sexual reproduction? Why vegetative reproduction is also considered as a type of asexual reproduction?

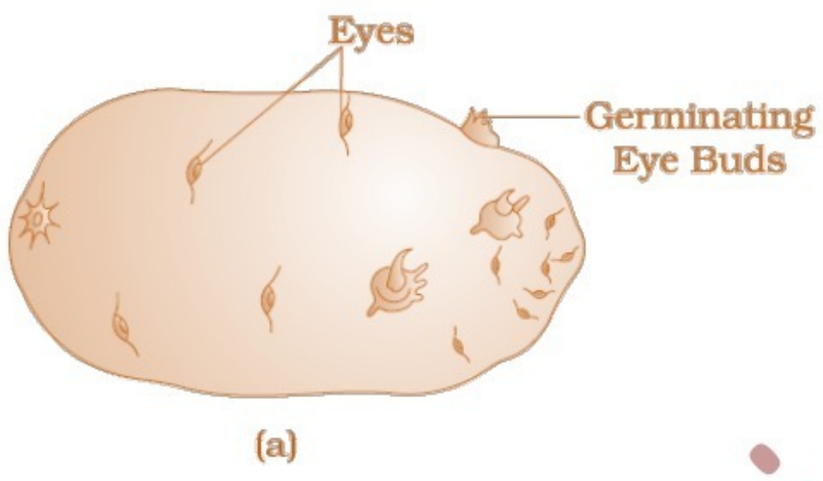
Answer 6.

Asexual	Sexual
Always single parent Involved	Two parents are involved except in Taenia, Fasciola
No formation of gametes	Male and female gametes are formed
Only mitotic division involved	Both mitotic and meiotic division involved
There is no fusion of Gametes	Gametes fuse to form Zygote
Offspring formed are genetically identical to parents	Genetically offspring are not identical to parents
Rate of reproduction is faster than sexual Repr	Rate of reproduction is slower than asexual mode
oduction can take place through whole body and even by body parts	Reproduction involved fusion of gametes only

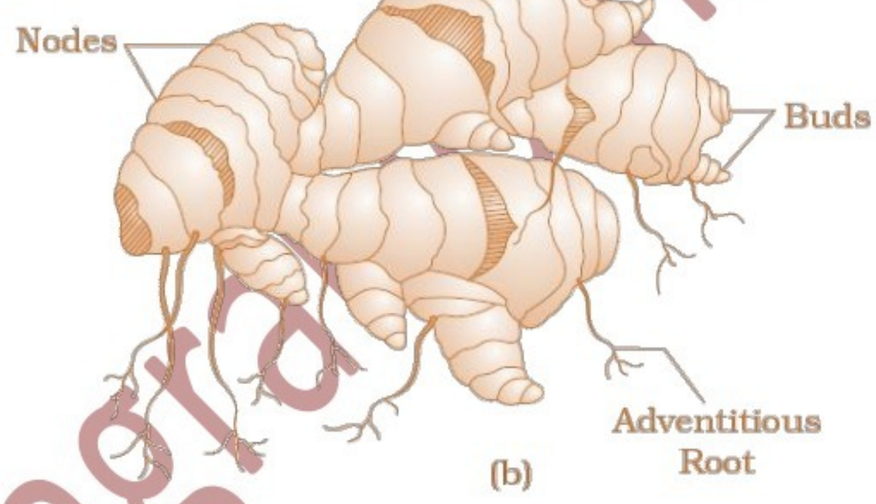
7. What is vegetative reproduction? Give two examples.

Answer 7.

In vegetative reproduction, there is no involvement of gametes of parents. In this,offspring can be produced by use of body parts such as bulb, tuber etc. Vegetative reproduction is also considered as asexual reproduction in plants. There is no involvement of gametes. Single parent can produce offspring without involvement of sex cells, like eyes of potato can develop into complete potato under favorable condition



(a) Eyes of Potato



(b) Rhizome of ginger

8. Define:

(a) Juvenile phase,

(b) Reproductive phase and

(c) Senescent phase

Answer 8.

(a) **Juvenile phase**: - Certain minimum age required for the entire organism in their life before they can be sexually active.

(b) **Reproductive phase**: - After end of juvenile phase organism enter into

reproductive phase. In reproductive phase, secondary sexual characters develop in organisms. Reproductive phase is the actual time for organisms to produce their young ones.

(c) **Senescent phase**: - It is final stage of growth cycle. In this phase, functional capacity decreases and break down of cell increases. Metabolic activity also slows down.

9. Higher organisms have resorted to sexual reproduction in spite of its complexity?

Answer 9.

In sexual reproduction, there is fusion of male and female gametes of both parents. There is combination of different traits and genes which results producing offspring who are genetically different compared to their parents. Through this kind of reproduction, offspring have better chances of survival and also helps in evolution.

10. Explain why meiosis and gametogenesis are always interlinked?

Answer 10.

As we know, parent body of sexually reproducing organisms are diploid (2n). For fusion of male and female gametes they should be haploid (n). So, through meiosis diploid cells convert into haploid cells.

11. Identify each part in a flowering plant and write whether it is haploid (n) or diploid (2n).

Answer 11.

Parts of Flowering Plant	Haploid/Diploid
Ovary	Haploid
Anther	Haploid
Egg	Diploid
Pollen	Haploid
Male gamete	Haploid
Zygote	Diploid

12. Define external fertilization. Mention its disadvantages.

Answer 12.

When fusion of male and female gametes takes place outside the parent's body like water is called external fertilization.

Examples: amphibians, fish.

Its disadvantages are as follows:-

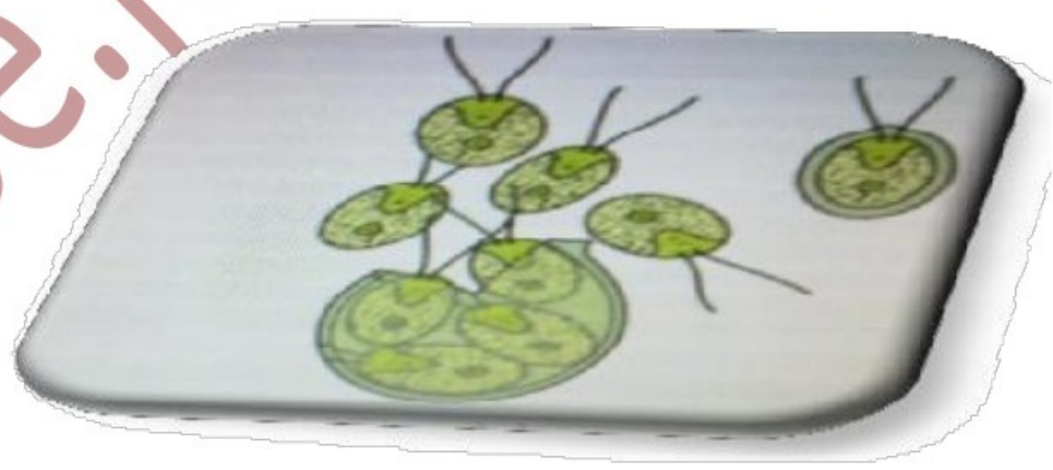
a. Very few offspring survive because parental care is not proper.
b. Very large number of gametes is required.
c. Chances of fusion of male and female gametes are very less.

13. Differentiate between a zoospore and a zygote.

Answer 13.

Zoospore	Zygote
It is formed in asexual reproduction	It is formed in sexual reproduction
It is produced by simple plants, algae or fungi	It is formed in complex organisms like Human
Zoospores are mobile structures	Zygotes are generally not mobile structures
It is formed from parent body without fusion of gametes	It is formed after fusion of male and female gametes

Single cell zygote



Zoospore of algae

14. Differentiate between gametogenesis and embryogenesis.

Answer 14.

Gametogenesis	Embryogenesis
Formation of haploid gametes in gonads	When zygote transforms into multicellular
It is of two types of gametogenesis: **spermatogenesis** **oogenesis**	It involves many processes gametogenesis fertilization cleavage gastrulation organogenesis
It results into fertilization	It results into birth
It varies from organism to organism	It almost has a definite series of phase for all the organisms having sexual mode of reproduction.

15. Describe the post-fertilization changes in flower.

Answer 15.

Processes that take place when post fertilization changes to flower are as follows:

- Endosperm develops from triploid primary endosperm in central cell of embryosac.
- Endosperm provides nutrients to embryo
- Endosperm is formed when male gamete fuses with secondary nucleus of secondary nucleus of central cell, this process is called triple fusion.
- On the basis of subsequent division, endosperm is of three types: nuclear endosperm, cellular endosperm, helobial endosperm.

Two cells are formed from zygote, a large basal suspensor cell and other smaller terminal embryonal cell. Then embryonal cell. Then embryonal cell divides separate to form a row of 4-8 cells. Furthur terminal cells also divides to form a cluster of cells called proembryo and hypobasal cells and other cells divide to form suspensor. Enlargement of terminal cell takes place to form hypophysis.

Apex develops from lowermost part of suspensor. Then embryo is formed after two successive division of proembryo cell. Further division takes place in embryo to give embryo a proper shape. Terminal cells formed from plumule and cotyledon.

Ovule develops into seed after double fertilization. In the development of seed,zygote develops into embryo and form endosperm, during development of embryo either neucellus is used to form a thin layer called perisperm, tegmen , two seed walls.

True fruit always formed in the ovary. Inside the ovary ovule is transformed into seeds and ovary wall makes pericarp also known as fruit wall.

16. What is bisexual flower? Collect 5 bisexual flowers from your neighbourhood and with the help of your teacher find out there common and scientific names.

Answer 16.

Bisexual flowers are those flowers which contain both pistil and stamen. E.g. sweet potato. For second answer consult your teacher.

17. Examine a few flowers of any cucurbit plant and try to identify the staminate and pistillate flowers. Do you know why other plant bears unisexual flowers?

Answer 17.

Consult your school teacher. Papaya, corn can produce unisexual flowers.

18. Why are offspring of oviparous animals at a greater risk as compared to offspring of viviparous animals?

Answer 18.

In oviparous animals, zygote formed is developed outside the female parent. Female parent hatch the fertilised egg out of her body. Due to which there is risk of predators.Where as in viviparous animals, formed zygote develops inside the the female parent in which offspring get better parental care as compared to oviparous animals