XII – ZOOLOGY

CHAPTER-1

REPRODUCTION IN ORGANISMS

I. One marks:

1) In which type of parthenogenesis, only males are produced	Arrhenotoky
2) Mode of reproduction in bacteria	Conjugation
3) Variations(genetic variation) are seen in	Sexual reproduction
4) In bee society, all members are diploid except drones.	True (drones are haploid).
5) Drones are produced by pathenogenesis.	True (drones are developed from unfertilised eggs).
6) Offsprings produed by asexual reproduction are genetically identical to the parent.	True
7) Asexual reproduction involves only mitosis and no meiosis.	True
8) A Fundamental feature of all living organisms	Reproduction
9) Which keeps continuation of species and creates variation in organisms?	Reproduction
10) Which are essential for adaptation and evolution of organisms?	Continuation and variations of organisms.
11) Reproduction by a single parent without involvement of gamete formation is	Asexual reproduction
12) In which reproduction the offsprings are geneticallly identical?	Asexual reproduction
13) Asexual reproduction is by which type of cell division?	Amitotic or mitotic division of somatic (body) cells .
14) Asexual reproduction is also called	Somatogenic (or) Blastogenic reproduction.
15) Reproduction by fusion of male and female gamete is called	Sexual reproduction.
16) The types of sexual reproduction seen in animals are	Syngamy (fertilisation) and conjugation.
17) The fusion of male and female gametes occurs outside the female body is called	External fertilisation
18) The fusion of male and female gametes occurs inside the female body is called	Internal fertilisation
19) Fusion of small sized and morphologically different gametes is called	Merogamy
20) Fusion of morphologially and physiologically identical gametes is called	Isogamy
21) Fusion of dissimilar gametes is called	Anisogamy
22) The temporary sexual union between two same species is called	Conjugation
23) Paramaecium, vorticella and bacteria reproduce sexually by	Conjugation
24) Development of an egg into a complete individual without fertilisation is called	Parthenogenesis
25) Parthenogenesis was first discovered by	Charles Bonnet in 1745.

26) Two types of parthenogenesis	Natural pathenogenesis and Artificial pathenogenesis.
27) In which type of parthenogensis, reproduction involves only female organisms?	Complete parthenogenesis
28) In which type of parthenogenesis, both sexual reproduction and pathenogenesis occur?	Incomplete parthenogenesis
29) Paedogenesis occurs in	Sporocysts and in redia larvae of liver fluke.
30) Artificial parthenogenesis occurs in	Annelid and sea urchin eggs.

II. Two mark questions:

1) Name an organism where cell division is itself a mode of reproduction.

Amoeba, Vorticella.

2) Name the phenomenon where the female gamete directly develops into a new organism with an avian example.

Phenomenon- Parthenogenesis.

e.g. Turkey, chicken, pigeon.

3) What is parthenogenesis? Give two examples from animals.

The process of development of an egg into a complete individual without fertilisation is called parthenogenesis.

e.g. Annelid and Sea urchin eggs.

4) Which type of reproduction is effective-Asexual or sexual and why?

Sexual reproduction is an effective method of reproduction than asexual reproduction because sexual reproduction contributes to the evolution of species by adding variation in a population. Variations occur because of the fusion of male and female gametes (sexual reproduction) carrying different sets of chromosomes.

5) Give reason for the following:

(a) Some organisms like honey bees are called parthenogenetic animals.

Reason: Male honey bees (drones) are developed from unfertilized eggs. So they are called parthenogenetic animals.

(b) A male honey bee has 16 chromosomes where as its female has 32 chromosomes.

Reason: A male honey bee is developed from unfertilised egg whereas a female honey bee id developed from fertilised egg.

6) Differentiate juvenile phase and reproductive phase.

Juvenile phase	Reproductive phase
1) Juvenile phase is a time period of growth between birth and reproductive maturity.	1) Reproductive phase is time period when the organisms reproduce and reach maturity,
2) This phase is also called as vegetative phase.	2) This phase is also called as maturity phase.

7) Differentiate syngamy and fertilisation.

Syngamy	Fertilisation
1) Syngamy is the fusion of haploid gametes to produce a diploid zygote.	1) Fertilisation is also the process of fusion of haploid gametes to produce a diploid zygote.
2) It occurs mostly in invertebrates or lower grade organisms.	2) It occurs in higher invertebrates and all vertebrates.

8) What are the stages of life cycle of living organisms?

1) Birth
2) Growth
3) Development
4) Maturation
5) Reproduction
6) Death.

9) Define reproduction.

Reproduction is a biological process by which organisms produce their young ones.

10) What is the use of reproduction?

Reproduction results in continuation of species and introduces variations in organisms which are essential for adaptation and evolution of species.

11) What are the basic features of reproduction?

- Synthesis of RNA and proteins
- Replication of DNA
- Cell division and growth
- Formation of reproductive units
- Fertilisation to form new individuals.

12) What is asexual reproduction?

Reproduction by a single parent without the involvement of gamete formation is called asexual reproduction. The offsprings produced by this reproduction are genetically identical. It is usually by amitotic or mitotic division of somatic (body) cells. It is also called somatogenic or blastogenic reproduction.

13) What is sexual reproduction?

Reproduction by the participation of two parents and involves fusion of male and female gametes to form a diploid zygote is called sexual reproduction. It creates genetic variation in organisms.

14) What are the different types of syngamy?

1) Autogamy
2) Exogamy
3) Hologamy
4) Paedogamy
5) Merogamy
6) Isogamy
7) Anisogamy.

15) What is autogamy?

The fusion of male and female gametes produced by same cell or same organism to form a zygote is called autogamy.

e.g. Actinosphaerium and Paramaecium.

16) What is exogamy?

The fusion of male and female gametes produced by different parents to form a zygote is called exogamy. It is biparental.

e.g. Human- dioecious or unisexual animal.

17) What is hologamy?

In lower organisms, some mature organisms do not form gametes but instead they behave like a gamete. The fusion of such gametes is called hologamy.

e.g. Trichonympha.

18) What is paedogamy?

The sexual union of young individuals produced immediately after the division of the adult parent cell by mitosis is called paedogamy.

19) What is merogamy?

The fusion of small sized and morphologically different gametes (merogametes) is called merogamy.

20) What is isogamy?

The fusion of morphologically and physiologically identical gametes (isogametes) is called isogamy.

e.g. Monocystis.

21) What is anisogamy?

The fusion of dissimilar gametes is called anisogamy.

e.g. Higher invertebrates and all vertebrates.

22) What is conjugation?

The temporary union between two individuals of same species to exchange certain amount of nuclear material (DNA) is called conjugation. The participating individuals are called conjugants. It is common in among ciliates.

e.g. Paramaecium, Vorticella and Bacteria (Prokaryotes).

23) What are the phases of life cycle in organisms?

The phases of life cycle are Juvenile phase, reproductive phase and senescent phase.

1. **Junenile phase or Vegetative phase:**

   Juvenile phase is the period of growth of an organism between birth and reproductive maturity.

2. **Reproductive phase or Maturity phase:**

   Reproductive phase is the period of reproduction of organisms and their offsprings reach maturity period. Breeding animals are two types: Seasonal breeders and continuous breeders based on the time period of reproduction.

   - Seasonal breeders reproduce at particular period of the year.
     e.g. frogs, lizards, most birds, deers, etc...
   - Continuous breeders reproduce throughout their sexual maturity.
     e.g. honey bees, poultry, rabbit, etc…

3. **Senescent phase:**

Senescent phase is the period begins at the end of reproductive phase when degeneration sets in the structure and functioning of the body.

24) What are the two types of parthenogenesis?

Natural parthenogenesis and Artificial parthenogenesis.

25) What is natural parthenogenesis?

Parthenogenesis which occurs regularly, constantly and naturally in the life cycle of certain animals is called natural parthenogenesis.

26) What is artificial parthenogenesis?

Patheonogenesis in which the unfertilised egg (ovum) is induced to develop into a complete individual by physical or chemical stimuli is called artificial parthenogenesis.

e.g. Annelid and sea urchin eggs.

27) What are the two types of natural parthengenesis?

Complete parthenogenesis and Incomplete parthenogenesis.

28) What is complete parthenogenesis?

Natural parthenogenesis in which there is no male organisms and the individuals are represented by females only is called complete parthenogenesis. There is no biparental sexual reproduction.

29) What is incomplete parthenogenesis?

Natural parthenogenesis in which both sexual reproduction and parthenogenesis occurs is called incomplete parthenogenesis.

e.g. In honey bees, fertilised eggs (zygotes) develop into queen and workers, whereas unfertilised eggs develop into drones (male).

30) What is Paedogenetic parthenogenesis (or) paedogenesis?

Pathenogenesis by which the larvae produce a new generation of larvae is called paedogenetic parthenogenesis. It is also called as paedogenesis. It occurs in sporocysts, Redia larvae of liver fluke , larvae of some insects like Gall fly.

31) What is Arrhenotoky?

Parthenogenesis by which only males are produced is called arrhenotoky.

e.g. honey bees.

32) What is thelytoky?

Parthenogenesis by which nly female are produced is called thelytoky.

e.g. Solenobia.

33) What is Amphitoky?

Pathenogenesis by which egg may develop into individuals of any sex is called amphitoky.

e.g. Aphis.