

SSM CENTUM MAKERS TEAM

12 TH STANDERD BIO-ZOOLOGY NEW SYLLUBUS – 2019

STUDY MATERIALS

UNIT 1

CHAPTER 1

1. Reproduction in Organisms

1 MARKS:

- 1). Reproduction is the fundamental feature of all living organisms.
- 2). Asexual reproduction is wide spread among different organisms.
- 3). Asexual reproduction is relatively simple organisation.
- 4). The offsprings show "uniparental inheritance" without any genetic variation.

2 MARKS:

1). what are the factors involving in the life cycle of living organisms.

Living organisms show a life cycle involving

- Birth,
- Growth,
- Development,
- Maturation,
- Reproduction and
- Death.

2). Reproduction.

Reproduction is the fundamental feature of all living organisms.
It is a biological process by which organisms produce their young ones.
The young ones grow and mature to repeat the process.

3). Basic features of reproduction.

All modes of reproduction have some basic features such as,

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

4). Different between sexual and asexual reproduction.

S.NO	Sexual Reproduction	Asexual Reproduction
1	When two parents participate in the reproductive process involving two types of gametes (ova and sperm), it is called sexual reproduction .	Reproduction by a single parent without the involvement of gamete formation is asexual reproduction and the offspring produced are genetically identical.

5). List out the different modes of asexual reproduction seen in animal.

The different modes of asexual reproduction seen in animals are,

- Fission,
- Sporulation,
- Budding,
- Gemmule formation,
- Fragmentation and
- Regeneration.

6). Define – Fission.

Fission is the division of the parent body into two or more identical daughter individuals. Four types of fission are seen in animals.

They are,

- Binary fission,
- Multiple fission,
- Sporulation and
- Strobilation.

7). Binary Fission:

In **binary fission**, the parent organism divides into two halves and each half forms a daughter individual.

The nucleus divides first amitotically or mitotically (karyokinesis), followed by the division of the cytoplasm (cytokinesis).

The resultant offsprings are genetically identical to the parent.

Depending on the plane of fission, binary fission is of the following types,

- i) Simple irregular binary fission
- ii) Transverse binary fission
- iii) longitudinal binary fission
- iv) Oblique binary fission

8). Simple Binary Fission:

Simple binary fission is seen in *Amoeba* like irregular shaped organisms, where the plane of division is hard to observe.

The **contractile vacuoles** cease to function and disappear.

The nucleoli disintegrate and the nucleus divides **mitotically**.

The cell then constricts in the middle, so the cytoplasm divides and forms two daughter cells.

9). Transverse Binary Fission:

In **transverse binary fission**, the plane of the division runs along the transverse axis of the individual.

E.g. *Paramecium* and *Planaria*.

In *Paramecium*, the macronucleus divides by **amitosis** and the micronucleus divides by **mitosis**.

10). Longitudinal Binary Fission:

In **longitudinal binary fission**, the nucleus and the cytoplasm divides in the longitudinal axis of the organism.

In flagellates, the flagellum is retained usually by one daughter cell.

The basal granule is divided into two and the new basal granule forms a flagellum in the other daughter individual.

E.g. *Vorticella* and *Euglena*.

11). Oblique Binary Fission:

In **oblique binary fission** the plane of division is oblique.

It is seen in **dinoflagellates**.

E.g. *Ceratium*.

12). Multiple Fission:

In **multiple fission** the parent body divides into many similar daughter cells simultaneously.

First, the nucleus divides repeatedly without the division of the cytoplasm, later the cytoplasm divides into as many parts as that of nuclei.

Each cytoplasmic part encircles one daughter nucleus.

This results in the formation of many smaller individuals from a single parent organism.

13). Repeated Fission:

If multiple fission produces four or many daughter individuals by equal cell division and the young ones do not separate until the process is complete, then this division is called **repeated fission**.

E.g. *Vorticella*.

14). Different between Merozoites and Sporozoites:

S.No	Merozoites	Sporozoites
1.	When multiple fission occurs in the schizont, the process is called schizogony and the daughter individuals are called Merozoites.	When multiple fission occurs in the Oocyte, it is called sporogony and the daughter individuals are called sporozoites.

15). Different between encystment and amoebulae:

S.No	Encystment	Amoebulae
1.	During unfavourable conditions (increase or decrease in temperature, scarcity of food) <i>Amoeba</i> withdraws its pseudopodia and secretes a three-layered, protective, chitinous cyst wall around it and becomes inactive. This phenomenon is called encystment.	When conditions become favourable, the encysted <i>Amoeba</i> divides by multiple fission and produces many minute amoebae called pseudopodiospore or amoebulae.

16). what is strobilation?

In some metazoan animals, a special type of transverse fission called **strobilation**. In the process of strobilation, several transverse fissions occur simultaneously giving rise to a number of individuals which often do not separate immediately from each other.
E.g. *Aurelia*.

17). Define – Plasmotomy.

Plasmotomy is the division of multinucleated parent into many multinucleated daughter individuals with the division of nuclei.

Nuclear division occurs later to maintain normal number of nuclei.

Plasmotomy occurs in *Opalina* and *Pelomyxa* (**Giant Amoeba**).

18). what is exogenous budding?

When buds are formed on the outer surface of the parent body, it is known as **exogenous budding**. E.g. *Hydra*.

19). what is endogenous budding?

In *Noctiluca*, hundreds of buds are formed inside the cytoplasm and many remain within the body of the parent.

This is called **endogenous budding**.

20). what is gemmules?

In freshwater sponges and in some marine sponges a regular and peculiar mode of asexual reproduction occurs by internal buds called **gemmules**.

21). what is apolysis?

The gravid proglottids are regularly cut off either singly or in groups from the posterior end by a process called apolysis.

This is very significant since it helps in transferring the developed embryos from the primary host (man) to find a secondary host (pig).

22). what are the types of Regeneration?

Regeneration is of two types,

- Morphallaxis and
- Epimorphosis.

23). Difference between Morphallaxis and Epimorphosis:

S.No	Morphallaxis	Epimorphosis
1.	In morphallaxis the whole body grows from a small fragment E.g. <i>Hydra</i> and <i>Planaria</i> .	Epimorphosis is the replacement of lost body parts. E.g. <i>star fish</i> , <i>tail of wall lizard</i> .

24). what are the types of Epimorphosis?

Epimorphosis is of two types. Namely,

- Reparative and
- Restorative

25). Difference between Reparative and Restorative regeneration:

S.No	Reparative regeneration	Restorative regeneration
1.	In reparative regeneration, only certain damaged tissue can be regenerated.	In restorative regeneration severed body parts can develop.



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