

# Chapter 23

## Reproduction in Organisms

1. Which one of the following statements is not correct?  
 (a) Offspring produced by the asexual reproduction are called clone.  
 (b) Microscopic, motile, asexual reproductive structures are called zoospores.  
 (c) In potato, banana and ginger, the plantlets arise from the internodes present in the modified stem.  
 (d) Water hyacinth, growing in the standing water, drains oxygen from water that leads to the death of fishes. (NEET-II 2016)
2. Which one of the following generates new genetic combinations leading to variation?  
 (a) Vegetative reproduction  
 (b) Parthenogenesis  
 (c) Sexual reproduction  
 (d) Nucellar polyembryony (NEET-II 2016)
3. Match column I with column II and select the correct option using the codes given below.
- | Column I                        | Column II         |
|---------------------------------|-------------------|
| A. Pistils fused together       | (i) Gametogenesis |
| B. Formation of gametes         | (ii) Pistillate   |
| C. Hyphae of higher Ascomycetes | (iii) Syncarpous  |
| D. Unisexual female flower      | (iv) Dikaryotic   |
- (a) A-(iv), B-(iii), C-(i), D-(ii)  
 (b) A-(ii), B-(i), C-(iv), D-(iii)  
 (c) A-(i), B-(ii), C-(iv), D-(iii)  
 (d) A-(iii), B-(i), C-(iv), D-(ii)  
 (NEET-II 2016)
4. Which of the following pairs is not correctly matched?
- |     | Mode of reproduction | Example            |
|-----|----------------------|--------------------|
| (a) | Binary fission       | <i>Sargassum</i>   |
| (b) | Conidia              | <i>Penicillium</i> |
| (c) | Offset               | Water hyacinth     |
| (d) | Rhizome              | Banana             |
- (2015)
5. In ginger, vegetative propagation occurs through  
 (a) bulbils (b) runners  
 (c) rhizome (d) offsets.  
 (2015 Cancelled)
6. In oogamy, fertilization involves  
 (a) a small non-motile female gamete and a large motile male gamete  
 (b) a large non-motile female gamete and a small motile male gamete  
 (c) a large non-motile female gamete and a small non-motile male gamete  
 (d) large motile female gamete and a small non-motile male gamete. (2004)
7. During regeneration, modification of an organ to other organ is known as  
 (a) morphogenesis (b) epimorphosis  
 (c) morphallaxis  
 (d) accretionary growth. (2001)
8. The process of series of changes from larva to adult after embryonic development is called  
 (a) regeneration (b) growth  
 (c) metamorphosis (d) ageing. (1999)
9. 'Nothing lives forever, but life continues'. What does it mean?  
 (a) Older die but new are produced due to reproduction.  
 (b) Nothing can produce without death.  
 (c) Death has nothing to do with the continuation of life.  
 (d) Parthenogenesis is must for sexual reproduction. (1995)

### Answer Key

1. (c) 2. (c) 3. (d) 4. (a) 5. (c) 6. (b) 7. (b) 8. (c) 9. (a)

## EXPLANATIONS

1. **(c)** : Potato, banana and ginger propagate vegetatively by their modified stems. Potato propagates by tuber which has buds over its eyes or nodes. These buds produce new plantlets. Banana and ginger propagate with the help of rhizomes which also have buds on nodes for the formation of new plantlets.
2. **(c)** : Sexual reproduction involves formation and fusion of male and female gametes. Gamete formation is accomplished through meiotic cell division which involves crossing over between non-sister chromatids of homologous chromosomes leading to new genetic recombination in gametes. Random fusion of these male and female gametes lead to the genetic variability in the offspring which although resemble their parents but also exhibit new traits of their own.
3. **(d)**
4. **(a)** : *Sargassum* is a brown alga. In brown algae, asexual reproduction occurs by means of spores and sexual reproduction varies from isogamy, anisogamy to oogamy.
5. **(c)** : The rhizome is a thickened, underground, dorsiventral stem that grows horizontally at a particular depth within the soil. It is brown in colour and shows cymose branching. It can be distinguished from the modified root by the presence of nodes, internodes, terminal buds, axillary buds and scale leaves. The rhizome are perennial and propagate vegetatively. They store food materials and appear tuberous. *E.g.*, *Zingiber officinale* (ginger), *Curcuma longa* (turmeric), *Canna indica*.
6. **(b)** : Oogamy is the sexual reproduction involving the formation and subsequent fusion of a large, usually stationary, female gamete and a small motile male gamete. The female gamete may contain nourishment for the development of the embryo, which is often retained and protected by the parent organism.
7. **(b)** : There are two mechanisms of regeneration: morphallaxis and epimorphosis.
  - (i) Morphallaxis - It involves the reconstruction of the whole body from a small fragment by reorganizing the existing cells. The regenerated organism is smaller than the original one, *e.g.*, *Amoeba*. However, after the completion of the process it grows and attains normal size after some time.
  - (ii) Epimorphosis - It replaces a lost organ of the body by proliferating new cells from the surface of the wound or injured part. Regeneration of an appendage in an arthropod, arm in a starfish, and tail in a lizard occurs by the process of epimorphosis.
8. **(c)** : Metamorphosis is a process of series of changes of form from larva to adult after embryonic development. Regeneration is defined as replacement, repair or restoration of the lost or damaged structures or reconstitution of the whole body from a small fragment of it during the post-embryonic life of an organism. Growth is the result of greater anabolic (synthetic) processes over the catabolic (destructive) processes in the organism. Ageing may be defined as the progressive deterioration in the structure and functions of the cells, tissues and organs of an organism with the advancing age.
9. **(a)** : Death is a natural process by which the individuals die either naturally or due to illness, accident etc. But, before dying generally, individuals leave new individuals of their own kind through reproduction and thus the life continues.

