

Chapter 1

Reproduction in Organisms

(Assertion Reason Questions)

Directions: In the following questions, a statement of assertion is followed by a statement of reason.

Mark the correct choice as:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.

Q.1. Assertion: Asexual reproduction is also known as blastogenesis.

Reason: There is no formation and fusion of gametes in asexual reproduction.

Q.2. Assertion: Asexual reproduction involves formation of clones of an organism.

Reason: Clones are morphologically and genetically similar individuals.

Q.3. Assertion: Algae and fungi switch to asexual method of reproduction before the onset of adverse conditions.

Reason: Asexual reproduction may introduce variations and leads to the formation of many clones.

Q.4. Assertion: The life span of plants is greater than animals.

Reason: Plants continue their growth at their tips.

Q.5. Assertion: Organisms that reproduce by binary fission are immortal.

Reason: Such organisms have special kind of rejuvenation capability.

Q.6. Assertion: Several seed bearing plants propagate vegetatively.

Reason: Sweet potatoes undergo vegetative propagation by means of root tubers.

Q.7. Assertion: Specialised plant structures such as rhizomes, tubers, corms, bulbs, etc., are excellent methods of a sexual reproduction.

Reason: They are common means of propagation in most of monocot families.

Q.8. Assertion: The main function of stem is reproduction.

Reason: Stem does not bear leaves to manufacture food for plants.

Q.9. Assertion: Rhizomes, tubers and corms are excellent methods of sexual reproduction.

Reason: Autogamy is transfer of pollen from anther of one flower to stigma of another.

Q.10. Assertion: A plant can be retained and multiplied indefinitely without any change or variation through asexual reproduction.

Reason: Asexual reproduction does not involve meiosis and syngamy.

Q.11. Assertion: Runners are grown above the ground horizontally or prostrate develop at the base of erect shoots.

Reason: Runners bear nodes and internodes.

Q.12. Assertion: Sponges are less specialized ones.

Reason: Sponges show a high power of regeneration.

Q.13. Assertion: Angiospermic flowers perform the function of sexual reproduction.

Reason: The male and female reproductive structures are found in the flowers.

Q.14. Assertion: Many plants are propagated vegetatively even though they bear seeds.

Reason: Potatoes multiply by tubers, apple by cutting.

Q.15. Assertion: Leaves of Bryophyllum, Begonia help in vegetative multiplication.

Reason: Leaves of these plants possess adventitious buds.

-X-X-X-

ANSWER KEY

Q.1 : (b) Blastogenesis development of an organism from non-sexual reproductive units like buds fragments etc. In asexual reproduction there is no formation and fusion of gametes.

Q.2 : (b) The reproduction is known as asexual reproduction, when an offspring is produced by a single parent without the involvement of gamete formation. As a result, the offspring that are produced are not only similar to one another but are also exact copies of their parent. Such a group of morphologically and genetically similar individuals are called clones.

Q.3 : (d) Algae and fungi multiply asexually during favourable conditions but gametes are formed during unfavourable conditions. The gametes fuse to form zygotes which often develop a thick wall to become zygospores. The later are dispersed. Under favourable conditions zygospore germinates to form new organism. Sexual reproduction induces variations which may help in survival of organism.

Q.4 : (a) The plant at their tips possess meristematic tissues which help them to grow throughout their lives even though the rest of their bodies is mainly made up of sclerenchyma, xylem and cork.

Q.5 : (b) In binary fission, the reproductive unit is comprised of the parent body as a whole, which gives rise to two daughter cells upon completion of the process. There are, however, no remnants and thus, the parent body cannot be said to be dead. The parent continues its life in the form of two daughter cells and hence, organisms undergoing binary fission are regarded immortal.

Q.6 : (b) Formation of new plants by means of vegetative units as tubers, buds, rhizomes is called vegetative propagation. It is useful for producing large number of

off springs within a short time and for preserving qualities such as disease resistance. In sweet potato, root tubers take part in vegetative propagation.

Q.7 : (a) A sexual reproduction produces individuals that are genetically identical to the parent plant. Roots such as corms, stem tubers, rhizomes, and stolon undergo vegetative reproduction. They are usually found in monocotyledonous families.

Q.8 : (a) Stems have four main functions which are: Support for the elevation of leaves, flowers and fruits. The stems keep the leaves in the light and provide a place for the plant to keep its flowers and fruits. Transport of fluids between the roots and the shoots in the xylem and phloem.

Q.9 : (d) A sexual reproduction produces individuals that are genetically identical to the parent plant. Roots such as corms, stem tubers, rhizomes, and stolon undergo vegetative reproduction. Self-pollination occurs when pollen from one flower pollinates the same flower or other flowers of the same individual.

Q.10 : (a) In asexual mode of reproduction, the genetic constituent remains the same. So the offspring and parents are morphologically and genetically same.

Q.11 : (b) Runners are special, narrow, green, above ground horizontal or prostrate branches which develop at the bases of erect shoots.

Q.12 : (b) Sponges are non-motile animals attached to some solid support. The body design involves very minimal differentiation and division into tissues.

Q.13 : (a) Angiospermic flowers possess male and female sex organs and perform the sexual reproduction.

Q.14 : (a) Vegetative reproduction is asexual type of reproduction potato, sugarcane, apple, etc., are multiplied by asexual means.

Q.15 : (a) Vegetative propagation through leaves takes place in Bryophyllum and Begonia. The leaf in the plant is broad and has notches at its margins. Buds arise from notches and these buds are called epiphyllous buds.