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Answers Key:

Assertion and reason

1. A. If both A and R are true and R is correct explanation for A
2. A. If both A and R are true and R is correct explanation for A

3 Marks

3. 1. In Greek Parthenos means Virgin, Genesis means Produce.
   2. Development of a haploid (n) egg into a complete individual without fertilization is known as parthenogenesis.
   3. It was first discovered by Charles Bonnet in 1745.
   4. Parthenogenesis occurs naturally in some invertebrates (e,g:) Nematodes, Water fleas, Scorpians, Parasitic (wasps).
4. 1. Sexual reproduction is considered to be a better mode of reproduction because it creates a hybrid that has more vigor than the parents.
   2. It also creates the variation in off springs making its survival better.
   3. The fact that most of the eukaryotes reproduce sexually in evidence of its evolutionary success.
   4. In many animals, it is actually the only mode of reproduction.
5. 1. In unicellular organism there is no special structure for reproduction.
   2. In binary fission the entire parent body constitute the reproductive unit and disappears when its division into two daughter unicellular cell is completed.
   3. These two daughter cells function as two new individuals.
   4. There is no remains of parent body cell and parent cannot be said to have died.
   5. In fact after binary fission parent continues living as two daughter individual.
   Hence, the unicellular organisms which undergo binary fission are called immortal (no natural death).
6. Different kinds of syngamy (fertilization) are prevalent among living organisms.
   a) Autogamy - The male and female gametes are produced by the same cell or same organism and both the gametes fuse together to form a zygote. e.g. Actinosphaerium and Paramecium.
   b) Exogamy - The male and female gametes are produced by different parents and they fuse to form a zygote. So it is biparental. e.g. Human beings – dioecious or unisexual animal.
   c) Hologamy - Lower organisms, sometimes the entire mature organisms do not form gametes but they themselves behave as gametes and the fusion of such mature individuals is known as hologamy e.g. Trichonympha.
   d) Paedogamy - It is the sexual union of young individuals produced immediately after the division of the adult parent cell by mitosis. e.g. Actinophrys.
   e) Merogamy - The fusion of small sized and morphologically different gametes (merogametes) takes place. e.g. Protozoa.
   f) Isogamy - The fusion of morphological and physiological identical gametes (isogametes) is called isogamy. e.g. Monocystis.
   g) Anisogamy - The fusion of dissimilar gametes is called anisogamy (Gr. An-without; iso-equal; gam-marriage). Anisogamy occurs in higher animals but it is customary to use the term fertilization instead of anisogamy or syngamy. e.g. higher invertebrates and all vertebrates.

2 Marks

7. In monocellular organs cell division is itself a mode of reproduction. (e.g:) Bacteria, Euglena and Amoeba.
8. Parthenogenesis is the phenomenon in which female gamete directly develops into a new organism. (e,g:) Honeybee (male or drone).
9. Offsprings produced by asexual reproduction are called clones, because they are genetically as well as morphologically similar to the parent organism. They are not only similar to one another, but are also exact copies of their parent (e,g): Amoeba, Spirogyra, Hydra, Yeast, etc.
10.

juvenile phase	reproductive phase
lt is also known as young and Vegetative Phase	It is also known as Maturity adult Phase
lt is the period of growth between the birth of the individual upto reproductive maturitiy.	The organisms reproduce and their offsprings reach maturity period

Multiple Choice Question

11. (a) Arrhenotoky
12. (c) Conjugation
13. (c) Sexual