CBSE Worksheet 02

Ch-1 Reproduction in Organisms

1. Megaspore mother cell undergo reduction division to form _____ megaspores.
   a. Four
   b. Three
   c. One
   d. Two
2. Development of fruit without fertilization is called
   a. Cell culture
   b. Parthenocarpy
   c. Parthenogenesis
   d. Cell division
3. Potato is a type of
   a. Root tuber
   b. Runner
   c. Stem tuber
   d. Rhizome
4. Which plant can propagated Vegetatively by leaf
   a. Chrysanthemum
   b. Asparagus
   c. Bryophyllum
   d. Agave
5. Sexual reproduction do not involves
   a. Haploid gametes
   b. Generally Single parent
   c. Faster mode of reproduction
   d. Fusion of gametes
6. Name common methods of vegetative propagation in Rose and Sugarcane.
7. Off springs derived by asexual reproduction are called clones. Justify giving two reasons.

8. Higher organisms have resorted to sexual reproduction in spite of its complexity. Why?
9. Name the structure which gets transformed into seed at maturity.
10. Give a reason why amoeba is immortal.
11. Name two acellular organisms which reproduce sexually.
12. What is the basic difference between binary fission and budding?
13. Which is a better mode of reproduction: sexual or asexual? Why?
14. Write the modes of asexual reproduction in the following organisms. Sycon, Penicillium, Spongilla, Paramecium, Yeast, Marchantia, Amoeba and Chlamydomonas.
15. Define (a) Juvenile phase,
    (b) Reproductive phase,
    (c) Senescent phase.

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Answer

1. a. Four, **Explanation:** Megaspore mother cell undergoes meiotic division to reduce the number of chromosome to half. Meiotic or reduction division occurs in two steps to produce four haploid megaspores.
2. b. Parthenocarpy, **Explanation:** Fruit formation without fertilisation results into seedless fruit. Parthenogenesis is development of new individual from unfertilised eggs. Parthenocarpy can be induced artificially using plant hormone auxin.
3. c. Stem tuber, **Explanation:** Potato is stem tuber as it contains nodes in form of eyes although it is formed inside the soil. New potato can be grown using the tuber in which new plantlets grows out from eyes
4. c. Bryophyllum, **Explanation:** Bryophyllum plants grow in marshy areas where seeds are not able to germinate. The leaf margin of Bryophyllum contains numerous plantlets before falling on muddy land.
5. c. Faster mode of reproduction, **Explanation:** Sexual reproduction is comparatively slower mode of reproduction than asexual reproduction. The formation of gametes, there fusion and embryo formation takes longer duration.
6. Cutting: In this method, cuttings of root, stem, and leaf are taken and planted in moist soil. A stem cutting produces new roots and a root cutting produces new stems. Each cutting regenerates to produce new plant e.g., stem cuttings are used in rose, bougainvillea, and sugarcane.
7. Clones means ones who are exact copies of their parent. Off springs derived by asexual reproduction are called clones because the off springs are
   i. Morphologically similar
   ii. Genetically identical
8. Because sexual reproduction induces genetic variability (adaptations) which make the offsprings better equipped for the struggle of existence.
9. in gymnosperms, the ovule becomes a seed, encasing the embryo and endosperm in a

seed coat.

10. Amoeba is considered immortal because it reproduces asexually by binary fission and the two daughter amoebae separate as new individuals without leaving anything of the parent to die, after division.
11. Paramoecium and plasmodium are the acellular organisms which reproduce sexually.
12. In the case of binary fission, the single-celled organism divides by cell division to give rise to two equal and similar offsprings. In the case of budding, however, the organism produces a small bud that gradually grows in size and then separates from the parent to develop into a new individual.
13. Sexual reproduction is better mode of reproduction. Because these are variations which contribute to evolution of the species and offsprings are better adapted in the environment.
14.

- Sycon	- External budding
- Penicillium	- Conidia
- Spongilla	- Internal budding (Gemmule)
- Paramecium	- Binary fission (transverse)
- Yeast	- Budding (External)
- Marchantia	- Gemmae
- Amoeba	- Binary fission (Simple)
- Chlamydomonas	- Zoospores

15. (a) Juvenile phase: Before reacting sexual maturity all organisms have to undergo a proper phase of physical growth. This phase is called juvenile phase. In human the juvenile phase lasts up to 12 to 13 years of age. (b) Reproductive phase: Once reproductive system is mature enough to produce male and female gametes the organism is ready to mate and reproduce. This phase is called reproductive phase. Some major hormonal changes mark this phase. In human the reproductive phase starts at about 12 to 13 years and lasts up to 55 to 60. (c) Senescent phase: After the reproductive phase the hormonal changes gradually slow down the production of male and female gametes. This phase is called the senescent phase.