CBSE Test Paper-05

Chapter 08 How Do Organisms Reproduce

1. In Amoeba, binary fission takes place by the following steps:
   i. The cellular constriction increases and divides the whole body into equal halves and form two daughter Amoeba
   ii. A constriction appears in the cell membrane and nuclear membrane
   iii. Each daughter Amoeba contains a nucleus surrounded by cytoplasm and cell membrane.
   iv. Nuclear constriction increases and divides the nucleus into two daughter nuclei

   The correct sequence is :
   a. (ii), (iv), (i), (iii)
   b. (iv), (i), (ii), (iii)
   c. (iii), (iv), (i), (ii)
   d. (i), (ii), (iii), (iv)
2. Which vegetative part is used in the propagation of bryophyllum? **(1)**
   a. leaf
   b. stem
   c. root
   d. petal
3. Which of the following is a birth control measure **(1)**

   A. IUCD
   B. Vasectomy
   C. Tubectomy
   D. Contraceptive Pills

   a. B and C
   b. A, B and D
   c. A and B
   d. All of these
4. Rhizome, tuber, corm and bulb are under ground_____that help in vegetative propagation **(1)**
   a. flower

b. root
c. leaf
d. stem

5. The specific scientific term for the release of ovum from ovary into body cavity is **(1)**
   a. Menopause
   b. puberty
   c. ovulation
   d. menstrual cycle
6. Where does the fertilization occur in mammals? **(1)**
7. Write the technical term for the following: **(1)**
   i) Funnel lying close to the ovary
   ii) The period of endometrial repair and regeneration.
   iii) Copulation chamber in the human female.
8. A highly convoluted narrow tube which occurs on the inner side of testis, starting from upper part and reaching upto back on the lower side. **(1)**
9. Which floral part is very attractive and coloured? **(1)**
10. Differentiate between the processes of binary fission and budding. **(3)**
11. Explain the term 'Regeneration' as used in relation to reproduction of organism. Describe briefly how regeneration is carried out in multicellular organisms like Hydra? **(3)**
12. What is the importance of reproduction? **(3)**
13. Differentiate asexual and sexual reproduction. **(3)**
14. Briefly explain vegetative propagation by stems. **(5)**
15. Describe regeneration in Planaria. **(5)**

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Answers

1. a. (ii), (iv), (i), (iii)

   Explanation: Amoeba is a unicellular organism. They reproduce by fission asexually, different from human's method..It has a porous cell membrane which encloses the cell organelles and cytoplasm. After replicating its genetic material through mitotic(equal)division, the cell divides into two equal sized daughter cells. The genetic material is also equally partitioned; therefore the daughter cells are genetically identical to each other and the parent cell. In this process, the nucleus of the Amoeba first divides to form two daughter nuclei by the process of Karyokinesis(division of cell nucleus). After the nucleus has divided into two, the process of Cytokinesis(division of cytoplasm) takes place in which the cytoplasm in the mother cell divides into two daughter cells. This leads to the formation of the two daughter Amoebae cell having a nucleus and its own cell organelles.

2. a. leaf

   Explanation: In the leaves of Bryophyllum meristamatic marginal notches are present. From these meristamatic tissues new plants can develop after coming in contact of soil

3. d. All of these

   Explanation: All of the following can be used for birth control. IUCD, Vasectomy, Tubectomy are surgical methods of birth control whereas contraceptive pills are oral pills

4. d. stem

   Explanation: Underground stem are modified plant structures that derive from stem tissue but exist under the soil surface

5. c. ovulation

   Explanation: In humans, this event occurs when the de Graaf's follicles rupture and release the secondary oocyte ovarian cells.

6. In mammals, fertilization occurs in the fallopian tube.

7. i) Funnel lying close to the ovary: **Infundibulum**

   ii) The period of endometrial repair and regeneration.:**Proliferative phase**

   iii) Copulation chamber in the human female.: **Vagina**

8. Epididymis occurs on the inner side of testis, starting from upper part and reaching upto back on the lower side.

9. **Petals** are colourful so that insects and birds can be attracted to assist the flower in pollination.

10.

Binary fission	Budding
The division process where parent body divides into two identical daughter cells.	The process of division in which an outgrowth called bud occurs on parent body. Which later detaches.
The identify of parent is completely lost as parent itself divides into two daughter cells.	The new individual in budding develops from the parent as an extra outgrowth. And the parent remains unchanged.
Cytoplasm along with nucleus divides evenly to produce 2 equal size daughter cells. e.g. Amoeba and paramecium.	Uneven distribution of cytoplasm. The new daughter bud is small with small nucleus and cytoplasm. e.g. Yeast and Hydra.

11. Regeneration is a term which is used in relation to reproduction. Which means producing its own kind likewise regeneration is the ability of some organisms to give rise to new organisms when the individual is cut or broken up into many pieces, it is seen in multicellular organisms e.g Hydra and Planaria.
    Regeneration in multicellular organism like Hydra

    i. It is carried out by specialised cells.
    ii. When Hydra is cut or broken up into many piecs these specialised cells proliferate and make large number of cells.

iii. From the mass of cells, differentiation occurs developing various cell types and tissues.
iv. These changes take place in an organised sequence which lead to development of new individual

12. Importance of reproduction-

a. Maintenance of the existence- Organisms are maintaining their existence on the earth since their origin, million year ago, only because of reproduction.
b. Preservation of species- Species (a group of similar organisms) are preserved because of reproduction. It is possible because reproducing organisms produce new individuals which are very similar to themselves.
c. Role in evolution- some variations is produced in the new organisms during reproduction which play an important role in evolution.

13. Differences between Asexual and Sexual forms of Reproduction

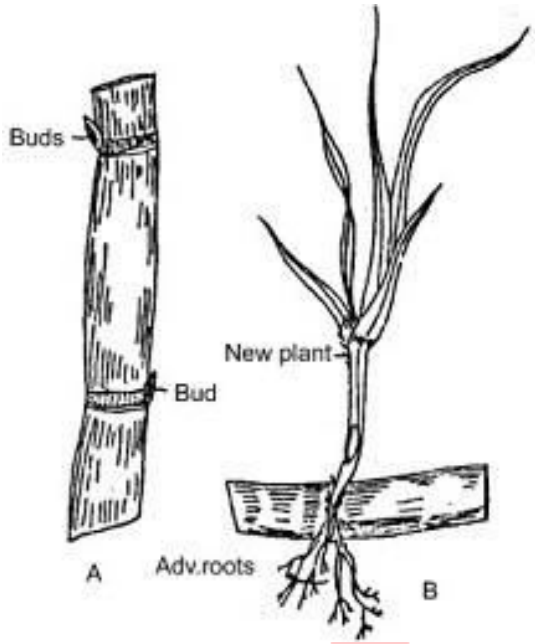
Asexual reproduction	Sexual reproduction
1) The process involves only one cell or one parent.	1) This process involves two cells or gametes belonging to either the same or different parents.
2) The whole body of the parent may act as reproductive unit or it can be a single cell or a bud.	2) The reproductive unit is called gamete which is unicellular and haploid.
3) Only mitotic division takes place.	3) Meiosis and fertilization are essential events.
4) No formation of sex organ.	4) Formation of sex organs is essential.
5) Offspring are genetically similar to patents.	5) Offspring are genetically different from parents

14. Vegetative propagation by stems : All underground stems even some aerial stems help in vegetative propagation. Some of these are aerial and creeping e.g. runners (Cynodon dactylon, lawn grass), stolons (Fragaria vesica, strawberry), and offsets

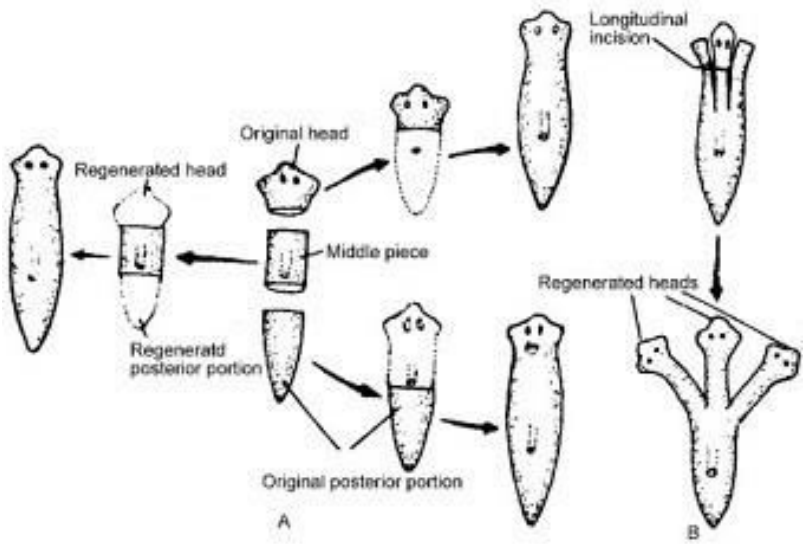
(Eichhornia); other are underground e.g. rhizomes (Zingiber officinale), corms (colocasia), bulbs (Allium cepa) and tubers (Solanum tuberosum)

Aerial stems of sugarcane, ipomoea, grape vine and cacti are also used for vegetative propagation.

In sugarcane, portions of the stem bearing one or more nodes and buds are cut and planted in the soil. Adventitious roots develop from the nodes and the buds grow into aerial shoots.



15. Regeneration in Planaria : When the anterior end of Planaria is cut along the length into two more parts, each part develops into a new head, resulting in a many headed planaria.



If the body is cut into three, four or more pieces, each piece regenerate the missing

parts. A noteworthy observation in this case is that a piece from the middle always regenerates a head towards its anterior side and tail towards its posterior side. In other words, each piece maintains its original polarity. A possible explanation of this fact is that in Planaria, the metabolic activity and hence capacity for regeneration, is the greatest at the anterior end, gradually decreases posteriorly and is minimum at the posterior end. Correspondingly, the anterior end of each piece, having greater metabolic activity, regenerative anterior part of the body and the posterior end remain as such.