

HW
26/07/21

10 "Variations ~~to~~ that confer an advantage to an individual organism only will survive in a population" Justify.

Variations is the difference in the characters or traits among the individuals of a species undergo sexual reproduction. The variations produced in organisms during successive generations gets accumulated in the organism. The significance of variations show up only if it continues to be inherited by the ~~set~~ offspring for several generations.

(2) Illustrate the following with the help of ^{suitable} diagrams :

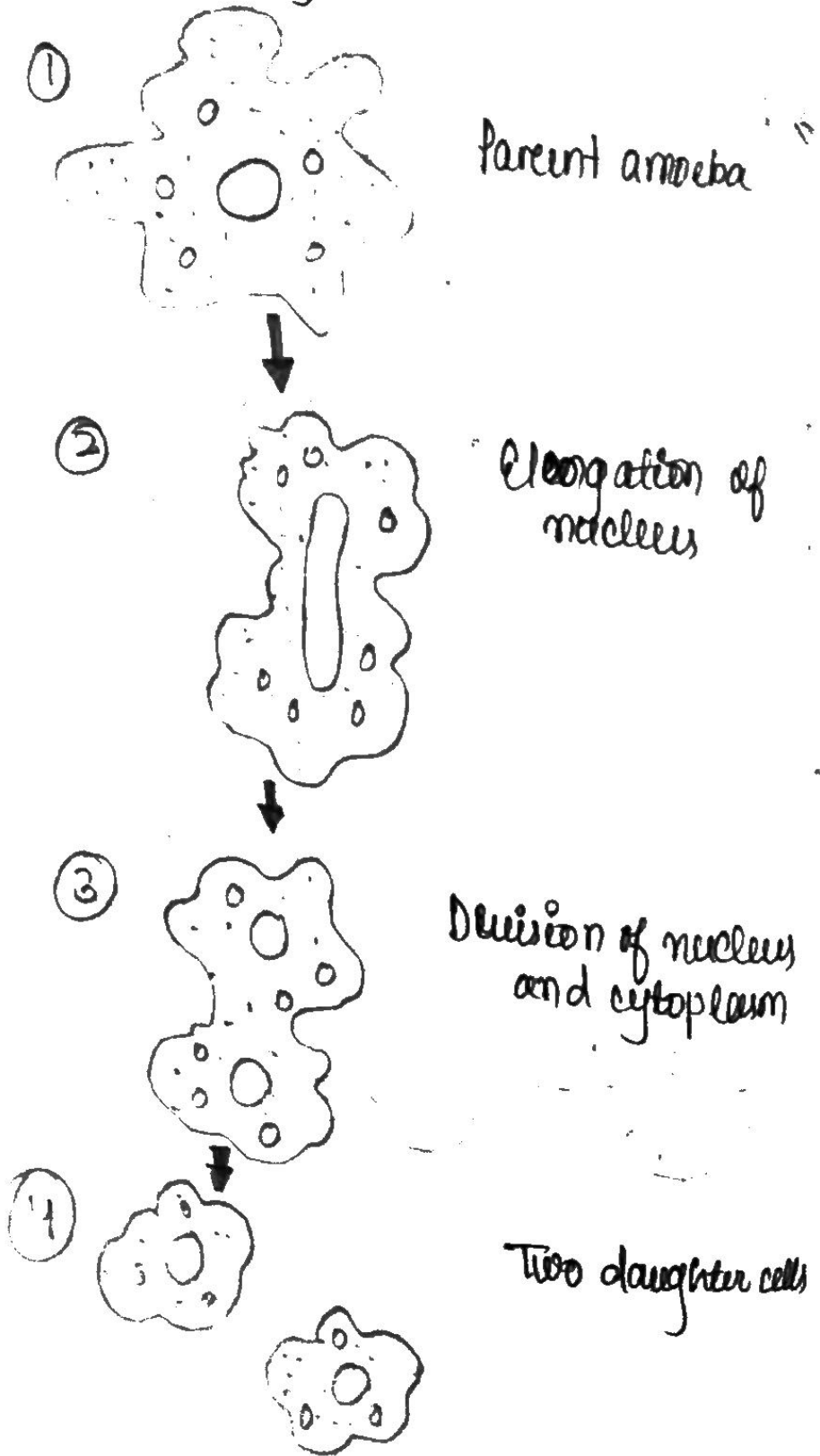
(i) Binary fission in Amoeba

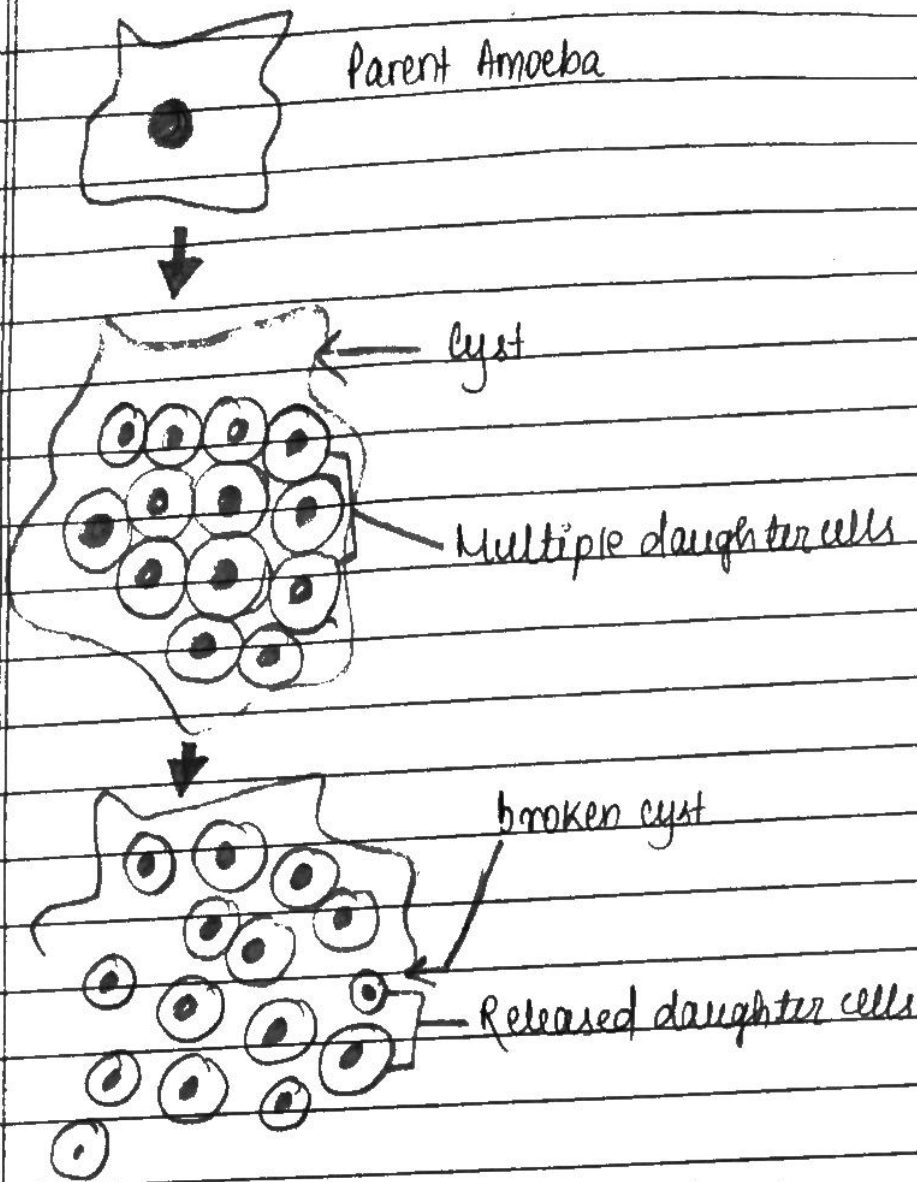
Amoeba is an unicellular organism which reproduces by binary fission under favourable conditions. After replicating its genetic material through mitotic division, the cell divides into two equal-sized daughter cells. In this method, two similar individuals are produced from a single parent amoeba. An amoeba that is about to undergo division grows larger, and eventually, its nucleus extends and divides into two. The division of cytoplasm follows the division of the nucleus. So, two amoebae are produced from a single parent, and the parent's identity is technically "lost".

(ii) Multiple fission in Amoeba.

Amoeba reproduces to survive and reproduce under unfavourable conditions undergoes multiple fission. When the conditions are unfavourable, Amoeba withdraws its pseudopodia and becomes almost round. It secretes a hard covering called cyst. The cyst forms a thick protective coat around it. Inside the cyst, the nucleus undergoes repeated divisions to form many nuclei. Nuclear division is followed by the division of cytoplasm. Hence, eventually many daughter cells are formed. On the return of favourable conditions, the cyst bursts open to release these daughter cells.

Binary fission in Amoeba.





Multiple fission in Amoeba.

(Q3) What is reproduction? What are its two types? Which one of the two confers new characteristics on the offsprings and how?

Reproduction is the process by which all organisms multiply in numbers and increase their population.

The two types of reproduction are:

- (i) asexual reproduction
- (ii) sexual reproduction.

Sexual reproduction confers new characteristics on the offspring due to variation in DNA copying.