

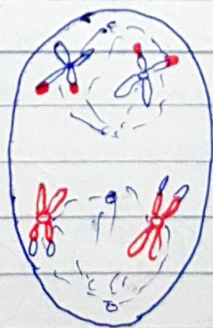
Second set of division → It is a simple mitotic division which is completed into the following four stages. They are -

- ① Prophase II
- ② Metaphase II
- ③ Anaphase II
- ④ Telophase II

① Prophase II → In this stage all the living organelles of the cell are clearly visible and both nucleus forms small ball like structure, chromosome uncoil and become small and thick which are called chromatid. Matrix is also formed in both nuclei around the chromatids. Nuclear membrane and nucleolus becomes lightly visible and they move towards equator.



② **Metaphase II** → In this stage nuclear membrane and nucleolus disappear from both the nuclei and thin matrix thread like structure forms from the matrix which are known as spindle fibre. These spindle fibre lie from one end to the other. The both of ends of each nuclei are called poles and places where the chromatids arranged are called equator. Each chromatid is attached to the spindle fibres by their centromere, in this time in each nuclei spindle fibres try to take one part of the chromatid to one pole and the other part towards the other pole.



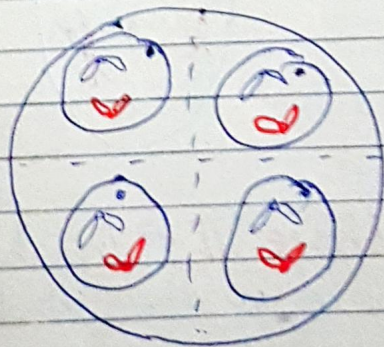
③ **Anaphase II** → In this stage constriction takes place in the spindle fibre and then the chromatids move towards the opposite pole of each nuclei, the spindle fibres break and degenerate. The chromatids forms group

at the opposite pole in each nuclei where some part of the spindle fibres are still attached to



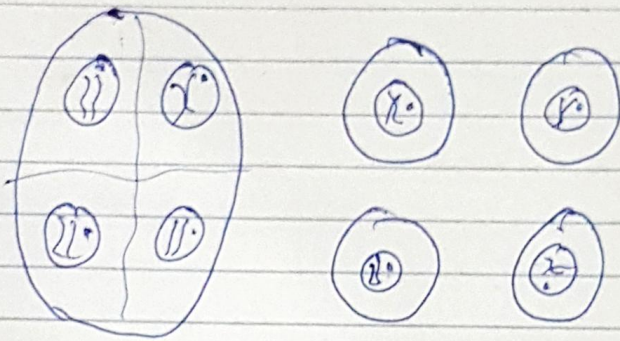
④ **Telophase II** → In this stage chromatids accumulate at each pole of the nucleus and absorb water. The spindle fibre completely vanishes, matrix disappears, chromatids become long with the formation of nuclear membrane, nucleoplasm and chromatin reticulum becomes clearly visible at the two pole of each nuclei.

In this way from each one nucleus four daughter nuclei are formed in which number of chromosome is half to that of the parent nucleus.



Cytokinesis → After the telophase II stage cytoplasm usually divides which is called cytokinesis.

At the mid region of each cell particles of cytoplasm accumulates in cross wise and they form layers together which undergo physical and chemical changes due to which middle lamella or cell plate is formed in each nucleus. After some time layers of cellulose is formed on the cell plate and thus parent cell divides into four daughter cells in which the number of chromosomes is that half of the parent cell.



Significance of Meiosis → Meiosis is the process which maintains the existence of every genera and species of plant kingdom or animal on the earth. Meiosis produce diploid gametes which is used in sexual reproduction. Crossing over during the diplotene stage provides an opportunity for exchange of gene between homologous chromatids, so it is fixed the heredity characters and chromosome number in each species. With the help of gene exchange it also help in mutation. Meiosis is the mechanism by which the parental characters are inherited from generation

to generation through sex chromosome. The reproductive cycle of all the sexual organisms will certainly have meiotic divisions. So also produce new variety of species with the help of meiotic division.