

Vidya Bhawan Balika Vidyapeeth Lakhisarai

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Sub. Biology

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Answer the following questions

Q.1. What is the role of centrioles apart from spindle formation?

A.1. In the centrosome, the two centrioles align perpendicular to each other, organized in a cartwheel pattern. Besides the spindle fibre formation seen in animal cell division, they form the basal body of cilia and flagella of animal/plant cells. They also assist in the formation of the sperm tail and microtubules.

Q.2. What happens to the DNA of the plastids and mitochondria during nuclear divisions such as mitosis?

A.2. Chloroplasts and mitochondria possess DNA in the form of extrachromosomal DNA and have no role in nuclear division. Only nuclear DNA takes part in mitosis.

Q.3. A cell having 32 chromosomes undergoes mitotic division. During metaphase, what will the chromosome number (N) of the cell? During anaphase, what will the DNA content of the cell be?

A.3. Mitosis occurs in somatic cells of entities. The number of chromosomes is the same in both parent and daughter cell and remains unchanged even at anaphase or metaphors. The content of DNA, however, is doubled at the interphase or synthetic phase. The division takes place at the anaphase but the number of chromosomes remains unchanged.

Q.4. Which tissue of animals and plants exhibit meiosis?

A.4. Meiosis takes place only in the tissues which produce gametes. In animals, the meiosis occurs within the reproductive cells or germ cells of the body and it includes the cells of the testes and ovaries. In plants, the meiosis occurs in the Androecium (male reproductive) and Gynoecium (female reproductive) parts of the plant.

Q.5. Under uncontrolled cell division, what is the pathological condition that occurs?

A.5. It is cancer. In this condition, the cells lose control of cell division and result in malformation of the organs where cell division takes place.