



BIOLOGY

BOOKS - VIKRAM PUBLICATION (ANDHRA PUBLICATION)

CELL CYCLE AND CELL DIVISION

Very Short Answer Type Question

1. Between a prokaryote and a eukaryote, which cell has a shorter cell division time ?



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2. Among prokaryotes and eukaryotes, which one has a shorter duration of a cell cycle ?



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3. Which of the phases of cell cycle is of longest duration ?



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4. Which tissue of animals and plants exhibits meiosis ?



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5. Given that the average duplication time of E.coli is 20 minutes. How much time will two E.coli cells take to become 32 cells ?



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6. Which part of the human body should one use to demonstrate stages in Mitosis ?



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7. What attributes does a chromatid require to be classified as a chromosome ?



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8. Which of the four chromatids of a bivalent at prophase-I of Meiosis can involve in cross-over ?



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9. If a tissue has at a given time 1024 cells. How many cycles of Mitosis had a original parental single cell undergone ?



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10. An anther has 1200 pollen grains. How many pollen mother cells must have been there to produce them ?



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11. At what stage of cell cycle does DNA synthesis occur ?



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12. It is said that one cycle of cell division in human cells, (Eukaryotic cells) take 24 hours. Which phase of the cycle, do you think occupies the maximum part of cell cycle ?



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13. It is observed that heart cell do not exhibit cell-division. Such cells do not divide further and exit.....phase to enter an inactive stage called.....of cell cycle. Fill in the blanks.





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14. Name the stage of Meiosis in which actual reduction in chromosome number occurs.



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15. Mitochondria and plastids have their own DNA (genetic material). What is their fate during nuclear division like Mitosis



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16. The following events occur during the various phases of the cell cycle. Fill in the blanks with suitable answer against each.

a) Disintegration of nuclear Membrane

b) Appearance of Nucleolus

c) Division of centromere

d) Replication of DNA



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Short Answer Type Question

1. In which phase of meiosis are the following formed ? Choose the answers from hint points given below.

a) Synaptonemal complex.....

b) Recombination nodules.....

c) Appearance /activation of a Enzyme recombinase.....

d) Termination of chiasmata

e) Interkinesis

f) Formation of dyad of cells.



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2. Mitosis result in producing two cells which are similar to each other. What would be the consequence if each of the following irregularities occurs during Mitosis ?

- a) Nuclear membrane fails to disintegrate
- b) Duplication of DNA does not occurs.
- c) Centromeres do not divide
- d) Cytokinesis does not occur.



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3. In the following stage oogonia stop their division and enter into prophase - I of meiotic division



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4. Mention the key features of meiosis.



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5. Which division is necessary to maintain constant chromosome number in all body cell of multicellular organism and why ?



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6. Though redundantly described as a resting phase, interphase does not really involve rest. Comment.



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Long Answer Type Question

1. Discuss on the statement - Telophases of prophase.



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2. What are the various stages of meiotic prophase - I ? Enumerate the chromosomal events during each stage ?



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3. Differentiate between the events of mitosis and meiosis.



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4. Write brief note on the following :

- a) Synaptonemal complex
- b) Metaphase plate



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5. Write briefly the significance of mitosis and meiosis in multicellular organism.



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Textual Exercise

1. Name a stain commonly used to colour chromosome.



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2. Name the pathological condition when uncontrolled cell division occurs.



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3. An organism has two parts of chromosomes (i.e., chromosome number = 4)

Diagrammatically represent the chromosomal arrangement during different phases of Meiosis II.



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4. Meiosis have events that lead to both gene recombinations as well as medelian recombinations. Discuss.



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5. Both unicellular and multicellular organisms undergo mitosis. What are the differences if any observed between the two processes ?



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Important Question

1. What attributes does a chromatid require to be classified as a chromosome ?



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2. Which of the four chromatids of a bivalent at prophase-I of Meiosis can involve in cross-over ?



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3. In which phase of meiosis are the following formed ? Choose the answers from hint points given below.

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5. Differentiate between the events of mitosis and meiosis.



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6. Write briefly the significance of mitosis and meiosis in multicellular organism.



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