



BIOLOGY

BOOKS - FULL MARKS BIOLOGY (TAMIL ENGLISH)

CELL CYCLE

Textbook Evaluation Questions Solved

1. The correct sequence in cell cycle is

A. S-M-G₁-G₂

B. S-G₁-G₂-M

C. G₁-S-G₂-M

D. M-G-G₂-S

Answer: C



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2. If mitotic division is restricted in G_1 phase of the cell cycle then the condition is known as

A. S Phase

B. G₂ Phase

C. M Phase

D. G₀ Phase

Answer: D



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3. Anaphase promoting complex APC is a protein degradation machinery necessary for proper mitosis of animal cells. If APC is

defective in human cell, which of the following is expected to occur ?

- A. Chromosomes will be fragmented
- B. Chromosomes will not condense
- C. Chromosomes will not segregate
- D. Recombination of chromosomes will occur

Answer: B



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4. In S phase , Amount of DNA in each cell?

A. Amount of DNA doubles same in each cell

B. Amount of DNA remains same in each cell

C. Chromosomes will not segregate is increased

D. Amount of DNA is reduced to half in each cell

Answer: A



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5. Centromere is required for

A. Transcription

B. Crossing over

C. Cytoplasmic cleavage

D. Movement of chromosome towards pole

Answer: D



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6. Synapsis occur between

- A. mRNA and ribosomes
- B. Spindle fibres and centromeres
- C. Two homologous chromosomes
- D. A male and a female gamete

Answer: C



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7. In meiosis over is initiated at

A. Diplotene

B. Pachytene

C. Leptotene

D. Zygotene

Answer: B



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8. Colchicine prevents the mitosis of the cells at which of the following stage

A. Anaphase

B. Metaphase

C. Prophase

D. Interphase

Answer: B



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9. The paring of homologous chromosomes on meiosis is known as

- A. Bivalent
- B. Synapsis
- C. Disjunction
- D. Synergids

Answer: B



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10. Anastral mitosis is the characteristic feature of

- A. Lower animal
- B. Higher animals
- C. Higher plants
- D. All living organisms

Answer: C



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11. Write any three significance of mitosis .



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12. Differentiate between mitosis and meiosis.



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13. Give an account of G_0 phase.



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14. Differentiate cytokinesis in plant cells and animal cells.



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15. Write about Pachytene and diplotene of prophase I.



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Additional Questions Solved

1. Most of the neurons in the brain are in ___stage.

A. G_1

B. S

C. G_2

D. G_0

Answer: D



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2. Short, constricted region in the chromosome is

A. Kinetochore

B. Centromere

C. Satellite

D. Telomere

Answer: B



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3. Robert Brown discovered the nucleus in the cells of ____ roots.

A. Mirabilis

B. Orchid

C. Moringa

D. Oryza

Answer: B



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4. Scientist who described chromosomes for the first time is.....

A. Robert Brown

B. Anton van Leeuwenhoek

C. Boveri

D. Anton Schneider

Answer: D



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5. Number of chromosomes in onion cell is ____

A. 8

B. 16

C. 32

D. 64

Answer: B



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6. Longest part of the cell cycle is ____

A. Prophase

B. G_1 Phase

C. Interphase

D. Sphase

Answer: C



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7. Eukaryotic cells divide every ____ hours.

A. 12

B. 24

C. 1

D. 6

Answer: B



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8. Cell cycle was discovered by_____

A. Singer & Nicolson

B. Prevost & Dumans

C. Schleider & Schwann

D. Boveri

Answer: B



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9. G_0 stage is called as ____ stage.

- A. Quiescent
- B. Metabolically active
- C. Synthesis of DNA
- D. Replication

Answer: A



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10. ____ Protein acts as major check point in G_1 phase.

A. Porins

B. Kinases

C. Cyclins

D. Ligases

Answer: C



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11. Replication of DNA occurs at ____phase.

A. G_0

B. G_1

C. S

D. G_2

Answer: C



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12. Condensation of interphase chromosomes into mitotic forms is done by ___proteins.

A. MPF

B. APF

C. AMF

D. MAF

Answer: A



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13. Which of the following is also called as direct division ?

A. Amitosis

B. Meiosis

C. Mitosis

D. Reduction division

Answer: A



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14. Cells of mammalian cartilage undergoes ____

A. Amitosis

B. Meiosis

C. Mitosis

D. Equational division

Answer: A



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15. Yeast cells undergo

- A. Open mitosis
- B. Closed mitosis
- C. Amitosis
- D. Meiosis

Answer: B



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16. Which is the longest phase of meiotic division ?

A. Anaphase

B. Telophase

C. Prophase

D. Interphase

Answer: C



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17. The DNA protein complex present in the centromere is

A. Cyclin

B. Kinesis

C. MPF

D. Kinetochore

Answer: D



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18. ____protein induces the break down of cohesion proteins leading to chromatid separation during mitosis.

A. APC

B. MPF

C. Cyclins

D. Kinetochore

Answer: A



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19. Regeneration of arms of star fish is due to

A. Meiosis

B. Amitosis

C. Mitosis

D. Budding

Answer: C



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20. ____ is called as reduction division.

A. Meiosis

B. Mitosis

C. Amitosis

D. Budding

Answer: A



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21. Bivalents occur at stage.

A. Zygotene

B. Leptotene

C. Pachytene

D. Diplotene

Answer: A



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22. Recombination of chromosomes occur at

A. Zygotene

B. Leptotene

C. Pachytene

D. Diplotene

Answer: C



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23. Terminalisation of chiasmata occurs at

..... .

A. Zygotene

B. Leptotene

C. Diakinesis

D. Pachtene

Answer: C



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24. Number of daughter cells formed at the end of Meiosis I is _____

A. 2

B. 4

C. 1

D. 0

Answer: A



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25. _____ division leads to genetic variability.

A. Mitotic

B. Amitotic

C. Meiotic

D. Equational

Answer: C



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26. In which stage does crossing over occur in a cell

A. leptotene

B. Zygotene

C. Pachytene

D. Diplotene

Answer: C



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27. Which of the following is not a mitogen ?

A. Giberellin

B. Ethylene

C. Kinetin

D. Colchicine

Answer: D



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28. In plants mitosis occurs at ____ cells.

A. Sclerenchyma

B. Meristem

C. Xylem

D. Parenchyma

Answer: B



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29. Which of the following alone is formed in the division of plant cells ?

A. Aster

B. Centrioles

C. Spindle

D. Microtubules

Answer: C



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30. Amphiastral type cell division is seen in
____ cells.

A. Fungal

B. Algal

C. Plant cells

D. Animal

Answer: D



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**Additional Questions Solved Very Short Answer
Type Questions**

1. Name the two types of nuclear division.



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2. Define Cell cycle.



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3. Cell cycle was discovered by



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4. Draw a tubular column showing the duration of various phase in the cell cycle of human cell.



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5. Define C-Value.



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6. Which one is the longest phase of cell cycle



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7. name the phases which comprises the interphase.



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8. Name the proteins involved in the activation of genes & their proteins to performs cell division.



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9. What do you mean by G_0 stage?



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10. What is the role of MPF in Cell cycle ?



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11. Distinguish between Karyokinesis & Cytokinesis .





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12. Point out any two cell-types which remain G_0 Phase.



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13. Why amitosis is called as ineipient cell division ?



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14. List out the disadvantages of Amitosis.



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15. Why is mitosis called equational division ?



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16. Enumerate the stages of mitosis.



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17. What is an aster?



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18. What is metaphase plate?



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19. What is kinetochore?



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20. How will you calculate the length of the S period.



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21. Which type of cell division occurs in reproductive cells? What will be the result?



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22. What is Synapsis ? Explain its types .



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23. State the law of independent assortment.



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24. Define Mitogen. Give an example.



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25. Distinguish between Anastral & Amphiastral.



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26. Draw a simple diagram to show the Amitosis.



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Additional Questions Solved Short Answer Type Questions

1. What is the role of nucleus in the cell ?





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2. What are restriction points? Mention its role in Cell cycle.



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3. Point out the reasons responsible for the arresting of the cell in G_1 Phase.



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4. Write a note on G_0 Phase.



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5. List out the events taking place in S-Phase.



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6. Distinguish between Karyokinesis & Cytokinesis .



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7. Distinguish between closed and open mitosis.



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8. What happens to plant cells at the end of Telophase in Mitosis.



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9. What is the significance of meiosis ?



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10. Differentiate mitosis in plants and animals



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11. Explain briefly about Endomitosis.



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12. How G_0 cells help in Closing Technology?



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Additional Questions Solved Long Answer Type Questions

1. Explain in detail about the various stages of Prophase I.



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2. Explain in detail about the various stages of Prophase I.



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3. Differentiate cytokinesis in plant cells and animal cells.



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4. Write any three significance of mitosis.



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5. Explain the various phase sin Cell Cycle.



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6. Write the four important features of the chromosome.



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Additional Questions Solved Higher Order Thinking Skills

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



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2. Complete the cell cycle by filling the gaps with respective phases.



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3. Telophase is reverse of prophase-Comment.



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



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5. Microspores are produced in the multiples of four. Why?



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6. Between Prokaryotes & Eukaryotes, which cell has a shorter cell division time.



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7. Though Prokaryotes cell division differs from Eukaryotic cell division, both show certain common aspects during cell division. Explain.



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



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9. A cell has 32 chromosomes. It undergoes mitosis. What will be the chromosome number during metaphase?



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10. Why siblings show disimilarities?



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11. Ramu met with an accident while riding cycle and got wounded in his leg. After few days, the wound was healed and the skin becomes normal. How?



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12. A flower of tomato plant following the process of sexual reproduction produces 240 viable seeds. What is the minimum number of microspore mother cells involved in this process?



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