



Botany By Rupesh Chaudhary Sir

1. Which of the following is not a feature of interphase?

- (1) Cells prepare for cell division
- (2) Period of intense synthesis and growth
- (3) Hereditary material present in form of distinct chromosomes
- (4) Cells spend 95 % of total time in this phase

2. Match the following column correctly

	Column-I		Column-II
A.	G ₁ phase	(i)	Mitochondria and chloroplast division
B.	G ₀ phase	(ii)	Amino acid, RNA and enzyme synthesis
C.	G ₂ phase	(iii)	DNA replication
D.	S phase	(iv)	Quiescent phase

- (1) A(i), B(iv), C(ii), D(iii)
- (2) A(ii), B(i), C(iii), D(iv)
- (3) A(ii), B(iv), C(i), D(iii)
- (4) A(ii), B(iii), C(i), D(iv)

3. A diploid cell has 68 chromosomes. How many bivalents will be formed in this cell during Meiosis-I?

- (1) 68
- (2) 34
- (3) 136
- (4) 14

4. Match the following columns and select the correct option

	Column-I		Column-II
A.	Leptotene	(i)	Synapsis
B.	Zygotene	(ii)	Bouquet stage
C.	Pachytene	(iii)	Terminalisation of chiasmata
D.	Diakinesis	(iv)	Crossing over

- (1) A(ii), B(i), C(iv), D(iii)
- (2) A(i), B(ii), C(iii), D(iv)
- (3) A(ii), B(i), C(iii), D(iv)
- (4) A(iii), B(i), C(iv), D(ii)

5. During S-phase of cell cycle

- (1) Replication of DNA takes place
- (2) Synthesis of tubulin protein takes place
- (3) Translation takes place
- (4) Both (1) & (3)

6. The sequence of events by which a cell duplicates its genome, synthesizes other constituents of the cell and eventually divides into two daughter cells is called

- (1) Cell division
- (2) Karyokinesis
- (3) Cell cycle
- (4) Cytokinesis

7. Find the incorrect statement with respect to cell cycle

- (1) Growth of cell occurs in all phases of a cell cycle
- (2) Interphase is a phase between two successive M phases
- (3) Interphase period differs from cell to cell
- (4) Time period of G₁ phase is constant for all the cells of a species

8. Read the following statements and choose the appropriate answer with respect to interphase of cell cycle

- A. Synthesis of histone protein
- B. Amount of DNA becomes double
- C. Number of chromosomes becomes double
- D. Duplication of centriole occurs
- (1) Only A, B and C are correct
- (2) Only C and D are correct
- (3) Only C is incorrect
- (4) All A, B, C and D are correct

9. Match the following columns and select the correct option

	Column-I		Column-II
A.	Pairing of homologous chromosomes	(i)	Diakinesis
B.	Crossing is over	(ii)	Diplotene
C.	Chiasmata visible	(iii)	Pachytene
D.	Terminalization of chiasmata	(iv)	Zygotene

- (1) A(iv), B(iii), C(ii), D(i)
- (2) A(iv), B(ii), C(i), D(iii)
- (3) A(ii), B(iii), C(i), D(iv)
- (4) A(ii), B(iv), C(i), D(iii)



10. All of these events occur during the diplotene stage, except

- (1) Completion of crossing over
- (2) Complete separation of homologous chromosomes after crossing over
- (3) Dissolution of synaptonemal complex
- (4) Chiasmata is visible

11. Pick out odd one with respect to cytokinesis in plant cell

- (1) Cell plate formation
- (2) Phragmoplast formation
- (3) Centripetal
- (4) Centrifugal

12. Match the given columns and select the correct option

	Column-I		Column-II
(A)	G ₀	(i)	Major check point
(B)	G ₁	(ii)	Centriole duplication
(C)	S	(iii)	Cell Suspends cell cycle
(D)	G ₂	(iv)	Tubulin protein synthesis

- (1) A(iii), B(i), C(ii), D(iv)
- (2) A(iii), B(iv), C(ii), D(i)
- (3) A(iv), B(iii), C(i), D(ii)
- (4) A(i), B(ii), C(iv), D(iii)

13. M-phase of cell cycle includes

- (1) Karyokinesis
- (2) Interphase
- (3) Cytokinesis
- (4) Both (1) & (3)

14. The phase between two successive M phases is

- (1) G₁
- (2) S
- (3) G₂
- (4) Interphase

15. Formation of synaptonemal complex and crossing over takes place respectively in

- (1) Zygotene and diakinesis
- (2) Zygotene and pachytene
- (3) Pachytene and diplotene
- (4) Pachytene and diakinesis

16. Morphology of chromosome and karyotype are most easily studied in

- (1) Prophase
- (2) Metaphase
- (3) Anaphase
- (4) Telophase

17. **Statement A** : DNA content of a cell becomes 4 C from 2C in S-phase.

Statement B : DNA replication takes place in S phase.

- (1) Both statements are true and the statement B is the correct explanation of the statement A
- (2) Both statements are true but the statement B is not the correct explanation of the statement A
- (3) Statement A is true but statement B is false
- (4) Both statements are false

18. If karyokinesis is not followed by cytokinesis, then it gives rise to

- (1) Zygote
- (2) Fertilised egg
- (3) Multinucleate condition
- (4) Embryo

19. If there are 20 chromosomes in G₁ phase then what will be the chromosome number after S phase?

- (1) 20
- (2) 40
- (3) 80
- (4) 10

20. A yeast and a human cell completes cell cycle in _____ and _____ respectively.

- (1) 90 minutes, 1440 minutes
- (2) 1440 minutes, 90 minutes
- (3) 30 minutes, 60 minutes
- (4) 60 minutes, 30 minutes

21. Protein required for spindle apparatus formation is synthesised during

- (1) G₁ phase
- (2) S phase
- (3) G₂ phase
- (4) M phase

22. Which of the following events is seen at the end of prophase of mitosis?

- (1) Condensation of chromatin material
- (2) Endoplasmic reticulum is present
- (3) Nuclear envelope is present
- (4) Golgi complex is present



- 23.** Arrange the following events of cell cycle in their sequential order
- Duplication of centrioles
 - Synthesis of tubulin proteins
 - Synthesis of ATP
 - Separation of duplicated components
- $a \rightarrow b \rightarrow c \rightarrow d$
 - $c \rightarrow a \rightarrow b \rightarrow d$
 - $b \rightarrow c \rightarrow d \rightarrow a$
 - $d \rightarrow c \rightarrow a \rightarrow b$
- 24.** Phases of mitosis which are opposite to each other are
- Anaphase and Telophase
 - Telophase and Prophase
 - Metaphase and Anaphase
 - Prophase and Metaphase
- 25.** Enzyme recombinase is involved during
- Mitotic prophase
 - Prophase-I
 - Prophase-II
 - Metaphase
- 26.** G_0 phase of cell cycle
- Represents a phase where cells remain metabolically active but do not proliferate
 - Is permanent for nerve cell
 - Is non-dividing phase called quiescent stage
 - All of the above
- 27.** Proteins required for spindle apparatus formation are synthesised during
- S phase
 - G_1 phase
 - G_2 phase
 - M phase
- 28.** What will be the ratio of cytokinesis during mitosis and meiosis ?
- 1 : 1
 - 3 : 1
 - 1 : 3
 - 1 : 2
- 29.** a ensures the production of b phase in the life cycle of sexually reproducing organisms whereas fertilization restores the c phase
- a - Mitosis, b - diploid, c - haploid
 - a - Meiosis, b - haploid, c - diploid
 - a - Mitosis, b - haploid, c - haploid
 - a - Meiosis, b - diploid, c - haploid



ANSWER KEY

1. (3)
2. (3)
3. (2)
4. (1)
5. (4)
6. (3)
7. (4)
8. (3)
9. (1)
10. (2)
11. (3)
12. (1)
13. (4)
14. (4)
15. (2)

16. (2)
17. (1)
18. (3)
19. (1)
20. (1)
21. (3)
22. (1)
23. (2)
24. (2)
25. (2)
26. (4)
27. (3)
28. (3)
29. (2)



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