BIOLOGY

CLASS-XI NEET

MODULE-02

Cell Cycle & Cell Division

| Structural Organisation in Animals |Cell Unit of Life |
Transport in plants| Biomolecules |

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Physics Wallah

NEET Past 10 Year Questions

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1. Match the following with respect to meiosis: (2020)

	Column-I		Column-II
1.	Zygotene	(i)	Terminalization
2.	Pachytene	(ii)	Chiasmata
3.	Diplotene	(iii)	Crossing over
4.	Diakinesis	(iv)	Synapsis

Select the correct option from the following:

	(1)	(2)	(3)	(4)
a.	(iv)	(iii)	(ii)	(i)
b.	(i)	(ii)	(iv)	(iii)
c.	(ii)	(iv)	(iii)	(i)
d.	(iii)	(iv)	(i)	(ii)

2. Identify the correct statement with regard to G_1 phase (Gap 1) of interphase. (2020)

a. Reorganisation of all cell components takes place.

b. Cell is metabolically active, grows but does not replicate its DNA.

c. Nuclear division takes place.

d. DNA synthesis or replication takes place.

3. Dissolution of the synaptonemal complex occurs during: (2020)

a. Zygotene b. Diplotene

b. Leptotene d. Pachytene

4. Some dividing cells exit the cell cycle and enter vegetative inactive stage. This is called quiescent stage (G_0). This process occurs at the end of: (2020)

a. G_1 phase b. S phase

c. G_2 phase d. M phase

5. In a mitotic cycle, the correct sequence of phases is (2020 Covid Re-NEET)

a. G_1, S, G_2, M b. M, G_1, G_2, S

c. G_1, G_2, S, M d. S, G_1, G_2, M

6. Attachment of spindle fibers to kinetochores of chromosomes becomes evident in : (2020 Covid Re-NEET)

a. Telophase b. Prophase

c. Metaphase d. Anaphase

7. Match the following events that occur in their respective phases of cell cycle and select the correct option: (2020 Covid Re-NEET)

1.	G_1 phase	(i)	Cell grows and organelle duplication
2.	S phase	(ii)	DNA replication and chromosome duplication
3.	G_2 phase	(iii)	Cytoplasmic growth
4.	Metaphase in M-phase	(iv)	Alignment of chromosomes

	(1)	(2)	(3)	(4)
a.	(iii)	(iv)	(i)	(ii)
b.	(iv)	(i)	(ii)	(iii)
c.	(i)	(ii)	(iii)	(iv)
d.	(ii)	(iii)	(iv)	(i)

8. During Meiosis I, in which stage synapsis takes place? (2020 Covid Re-NEET)

a. Zygotene b. Diplotene

c. Leptotene d. Pachytene

9. The correct sequence of phases of cell cycle is (2019)

a. $M \rightarrow G_1 \rightarrow G_2 \rightarrow S$ b. $G_1 \rightarrow G_2 \rightarrow S \rightarrow M$

c. $S \rightarrow G_1 \rightarrow G_2 \rightarrow M$ d. $G_1 \rightarrow S \rightarrow G_2 \rightarrow M$

10. Cell in G_0 phase (2019)

a. Exit the cell cycle b. Enter the cell cycle

c. Suspend the cell cycle d. Terminate the cell cycle

11. The stage during which separation of the paired homologous chromosomes begins is (2018)

a. Pachytene b. Diplotene

c. Diakinesis d. Zygotene

12. Which of the following options gives the correct sequence of events during mitosis? (2017-Delhi)

a. Condensation → Nuclear membrane disassembly → Crossing over → Segregation → Telophase

b. Condensation → Nuclear membrane disassembly → Arrangement at equator → Centromere division → Segregation → Telophase

c. Condensation → Crossing over → Nuclear membrane disassembly → Segregation → Telophase

d. Condensation → Arrangement at equator → Centromere division → Segregation → Telophase

13. Anaphase promoting complex (APC) is a protein degradation machinery necessary for proper mitosis of animal cells. If APC is defective in a human cell, which of the following is expected to occur? (2017-Delhi)

a. Chromosomes will not condense
b. Chromosomes will be fragmented
c. Chromosomes will not segregate
d. Recombination of chromosome arms will occur

14. DNA replication in bacteria occurs: (2017-Delhi)

a. During S-phase
b. Within nucleolus
c. Prior to fission
d. Just before transcription

15. Which of the following statements is correct with respect to cell cycle? (2017-Gujarat)

a. DNA content of cell remains constant during entire cell cycle
b. A cell in G_1 phase has double the amount of DNA than a cell in G_2 phase
c. Each chromosome has two chromatids in G_1 phase
d. Nerve cells in adult human are in G_0 state

16. At what phase of meiosis homologous chromosomes are separated? (2017-Gujarat)

a. Anaphase II b. Prophase I
c. Prophase II d. Anaphase I

17. Match the stages of meiosis in Column–I to their characteristic features in Column–II and select the correct option using the codes given below: (2016 - II)

	Column I		Column II
A.	Pachytene	i.	Pairing of homologous chromosomes
B.	Metaphase-I	ii.	Terminalisation of chiasmata
C.	Diakinesis	iii.	Crossing over takes place
D.	Zygotene	iv.	Chromosomes align at equatorial plate

Codes:

a. A-ii B-iv C-iii D-i
b. A-iv B-iii C-ii D-i
c. A-iii B-iv C-ii D-i
d. A-i B-iv C-ii D-iii

18. When cell has stalled DNA replication fork, which checkpoint should be predominantly activated? (2016 - II)

a. M
b. Both G_2/M and M
c. G_1/S
d. G_2/M

19. During cell growth, DNA synthesis takes place in: (2016 - II)

a. G_2 phase b. M phase
c. S phase d. G_1 phase

20. Which of the following is not a characteristic feature during mitosis in somatic cells? (2016 - I)

a. Spindle fibres
b. Disappearance of nucleolus
c. Chromosome movement
d. Synapsis

21. In meiosis, crossing over is initiated at: (2016 - I)

a. Pachytene b. Leptotene
c. Zygotene d. Diplotene

22. Select the correct option: (2015)

	Column I		Column II
A.	Synapsis aligns the homologous chromosomes	i.	Anaphase-II
B.	Synthesis of RNA and protein	ii.	Zygotene
C.	Action of enzyme recombinase	iii.	G_2-phase
D.	Centromeres do not separate but chromatids move towards opposite poles	iv.	Anaphase-I
		v.	Pachytene

a. A-i B-ii C-iii D-iv
b. A-ii B-iii C-iv D-v
c. A-ii B-i C-iii D-iv
d. A-ii B-iii C-v D-iv

23. A somatic cell that has just completed the S phase of its cell cycle, as compared to gamete of the same species, has: (2015 Re)

a. Twice the number of chromosomes and four times the amount of DNA
b. Four times the number of chromosomes and twice the amount of DNA
c. Twice the number of chromosomes and twice the amount of DNA
d. Same number of chromosomes but twice the amount of DNA

24. Arrange the following events of meiosis in correct sequence: (2015 Re)

A. Crossing over
B. Synapsis
C. Terminalisation of chiasmata
D. Disappearance of nucleolus

a. (B), (A), (C), (D) b. (A), (B), (C), (D)
c. (B), (C), (D), (A) d. (B), (A), (D), (C)

25. The enzyme recombinase is required at which stage of meiosis? (2014)

a. Diakinesis
b. Pachytene
c. Zygotene
d. Diplotene

26. During which phase(s) of cell cycle, amount of DNA in a cell remains at 4C level if the initial amount is denoted as 2C? (2014)

a. G_2 and M
b. G_0 and G_1
c. G_1 and S
d. Only G_2

27. In 'S' phase of the cell cycle: (2014)

a. Amount of DNA is reduced to half in each cell
b. Amount of DNA doubles in each cell
c. Amount of DNA remains same in each cell
d. Chromosome number is increased

28. The complex formed by a pair of synapsed homologous chromosomes is called: (2013)

a. Axoneme
b. Equatorial plate
c. Kinetochores
d. Bivalent

29. A stage in cell division is shown in the figure. Select the answer which gives correct identification of the stage with its characteristics: (2013)

a.	Telophase	Endoplasmic reticulum and nucleolus not reformed yet.
b.	Telophase	Nuclear envelope reforms, Golgi complex reforms.
c.	Late Anaphase	Chromosomes move away from equatorial plate, Golgi complex not present.
d.	Cytokinesis	Cell plate formed, mitochondria distributed between two daughter cells.

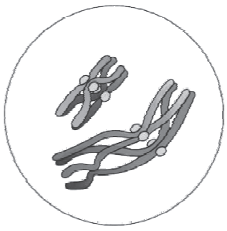
30. Identify the meiotic stage in which the homologous chromosomes separate while the sister chromatids remain associated at their centromeres: (2012 Mains)

a. Metaphase I
b. Metaphase II
c. Anaphase I
d. Anaphase II

31. During gamete formation, the enzyme recombinase participates during: (2012 Pre)

a. Prophase-II
b. Metaphase-I
c. Anaphase-II
d. Prophase-I

32. Given below is the representation of a certain event at a particular stage of a type of cell division. Which is this stage? (2012 Pre)



Prophase I

a. Both prophase and metaphases of mitosis
b. Prophase I during meiosis
c. Prophase II during meiosis
d. Prophase of Mitosis

33. At metaphase, chromosomes are attached to the spindle fibres by their: (2011 Mains)

a. Kinetochores
b. Centromere
c. Satellites
d. Secondary constrictions

34. Select the correct option with respect to mitosis: (2011 Pre)

a. Chromosomes move to the spindle equator and get aligned along equatorial plate in metaphase.
b. Chromatids separate but remain in the center of the cell in anaphase.
c. Chromatids start moving towards opposite poles in telophase.
d. Golgi complex and endoplasmic reticulum are still visible at the end of prophase.

ABOUT PHYSICS WALLAH

Alakh Pandey is one of the most renowned faculty in NEET & JEE domain's Physics. On his YouTube channel, Physics Wallah, he teaches the Science courses of 11th and 12th standard to the students aiming to appear for the engineering and medical entrance exams.

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