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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NCERT Based Questions

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1. The M phase starts with the nuclear division, corresponding to the separation of daughter chromosomes called ...A... and usually ends with division of cytoplasm, called ...B...

a. A-Cytokinesis, B-Karyokinesis

b. A-Interkinesis, B-Cytokinesis

c. A-Karyokinesis, B-Cytokinesis

d. A-Interkinesis, B-Karyokinesis

2. Which of the following cells in an adult animal do not appear to exhibit division?

a. Bone marrow cells

b. Upper layer of epidermis

c. Heart cells

d. All the above

3. Starting of metaphase is marked by

a. Complete disintegration of nuclear membrane

b. Disappearance of ER, GB, nucleolus and nuclear envelope

c. Initiation of condensation chromosomal material

d. Chromosomes align at the equatorial plate

4. Meiosis in diploid organisms results in:

a. Production of gametes

b. Reduction in the number of chromosomes

c. Introduction of variation

d. All of the above

5. Which of the following proteinaceous components of the cell cytoplasm help in the initiation of the assembly of mitotic spindle?

a. Microtubules b. Microbodies

c. Centromeres d. Kinetochores

6. Read the following statements and find out the incorrect statement.

a. In an animal cell, cytokinesis is achieved by the appearance of a furrow in the plasma membrane.

b. Furrow formation starts in the centre of cell and grows outward to meet the existing lateral walls.

c. Cell plate represents the middle lamella between the walls of two adjacent plant cells.

d. During cytokinesis, organelles like mitochondria and plastids get distributed between the two daughter cells.

7. In which stage of meiosis, the structure, number and shape of chromosomes can be observed?

a. Prophase I b. Metaphase I

c. Anaphase I d. Telophase I

8. A bivalent of meiosis I consists of

a. Four chromatids and two centromeres

b. Two chromatids and one centromere

c. Two chromatids and two centromeres

d. Four chromatids and four centromeres

9. How many chromosomes will the cell have at G_1, after S and after M-phase respectively if it has 14 chromosomes at interphase?

a. 7, 14, 14 b. 14, 14, 14

c. 14, 14, 7 d. 7, 7, 7

10. G_1 stage of interphase of cell cycle shows

a. Active synthesis of DNA

b. Active synthesis of RNA

c. Active synthesis of protein

d. Both (b) and (c)

11. Meiosis occurs in organisms during:

a. Sexual reproduction b. Vegetative reproduction

c. Both (a) and (b) d. None of these

12. What is the requirement of equational division in meiosis?

a. Formation of four gametes

b. Segregation of replicated chromosomes

c. Equal distribution of haploid chromosomes

d. Equal distribution of genes on chromosomes

13. There are a number of differences between fission of a bacterium and human cell division. Which of the following is not one of them?

a. A bacterium has only one chromosome.

b. Duplicated bacterial chromosomes attach to the plasma membrane.

c. Bacteria are smaller and simpler than human cells.

d. Only bacteria have to duplicate their DNA before dividing.

14. In G_1-phase of cell division,

a. RNA and proteins are synthesised for cell growth

b. DNA and proteins are synthesised

c. Formation of RNA and protein continues for spindle formation and cell growth

d. Cell undergoes duplication

15. During Anaphase-I of meiosis:

a. Homologous chromosomes separate

b. Non-homologous chromosomes separate

c. Sister chromatids separate

d. Non-sister chromatids separate

16. G_2 phase is not associated with
a. Synthesis of proteins
b. Synthesis of tubulin proteins for spindle fibres
c. DNA synthesis
d. None of the above

17. "G_0" state of cells in eukaryotic cell cycle denotes
a. Check point before entering the next phase
b. Pausing in the middle of a cycle to cope with a temporary delay
c. Death of a cell
d. Exit of cells from G_1 phase

18. In some organisms, such as certain fungi and algae, cells undergo mitosis repeatedly without subsequently undergoing cytokinesis. What would result from this?
a. A decrease in chromosome number
b. Inability to duplicate DNA
c. Division of the organism into many cells, most lacking nuclei
d. Large cells containing many nuclei

19. Which of the two events restore the normal number of chromosomes in life cycle?
a. Mitosis and Meiosis
b. Meiosis and fertilisation
c. Fertilisation and mitosis
d. Only meiosis

20. Mitosis is characterised by:
a. Reduction division
b. Equal division
c. Both (a) and (b)
d. Pairing of homologous chromosomes

21. The process of mitosis is divided into 4 phases. Identify the correct order in which these phases appear in mitosis
a. Anaphase, metaphase, telophase and prophase
b. Telophase, anaphase, metaphase and prophase
c. Metaphase, prophase, anaphase and telophase
d. Prophase, metaphase, anaphase and telophase

22. If you are provided with root-tips of onion in your class and are asked to count the choromosomes, which of the following stages can you most conveniently look into?
a. Telophase
b. Anaphase
c. Prophase
d. Metaphase

23. For viewing diakinesis, which one of the following would be a suitable material?
a. Onion root tip
b. Leaf of Dichanthium
c. Rat tail
d. Flower bud

24. The two chromatids of a metaphase chromosome shows
a. Replicated chromosomes to be separated at anaphase
b. Homologous chromosomes of a haploid set
c. Non-homologous chromosomes joined at the centromere
d. Maternal and paternal chromosomes joined at the centromere.

25. During mitosis, after the separation of centromeres, the chromatids move towards the opposite poles of the spindle. Name the term used for these chromatids.
a. Daughter chromosomes
b. Kinetochores
c. Half spindles
d. Centrosomes

26. Cells which are not dividing are likely to be at:
a. G_1
b. G_2
c. G_0
d. S-phase

27. Which of the following is true for the mitotic spindle?
a. It is composed of actin and myosin microfilaments
b. It is composed of kinetochores at the metaphase plate.
c. It is composed of microtubules, which help in separating the chromosomes to opposite poles of he cell.
d. It originates only at the centrioles in the centrosomes.

28. A drug called colchicine is shown to interfere specially with spindle microtubules formation during mitosis. This would result in
a. Dehydration of chromosomes
b. Despiralization of chromosomes
c. Arrest of chromosome movements
d. Arrest of centrioles movements

29. During which stages (or prophase I substages) of meiosis, do you expect to find the bivalents and DNA replication respectively?
a. Pachytene and interphase (between two meiotic divisions)
b. Pachytene and interphase (just prior to prophase I)
c. Pachytene and S phase (of interphase just prior to prophase I)
d. Zygotene and S phase (of interphase prior to prophase I)

30. Which of the events listed below is not observed during mitosis?
a. Chromatin condensation
b. Movement of centrioles to opposite poles
c. Appearance of chromosomes with two chromatids joined together at the centromere
d. Crossing over

31. In telophase of mitosis, the mitotic spindle breaks down and nuclear membranes form. This is essentially the opposite of what happens in

a. Prophase
b. Interphase
c. Metaphase
d. S phase

32. Identify the wrong statement about meiosis:

a. Pairing of homologous chromosomes
b. Four haploid cells are formed
c. At the end of meiosis, the number of chromosomes are reduced to half
d. Two cycle of DNA replication occurs

33. At what phase of meiosis are there two cells, each with sister chromatids aligned at the spindle equator?

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

34. Choose the event of cell cycle which shows the importance of synapsis and the formation of chiasmata

a. An increase in the variation of progeny occurs
b. Reciprocal exchange of chromosomal sections occurs
c. The DNA on homologous chromosomes mix
d. All of the above

35. Select the correct statement about G_1 phase:

a. Cell is metabolically inactive
b. DNA in the cell does not replicate
c. It is not a phase of synthesis of macromolecules
d. Cell stops growing

36. If the number of bivalents are 8 in metaphase - I, what shall be the number of chromosomes in daughter cells after meiosis -I and meiosis - II respectively?

a. 8 and 4
b. 4 and 4
c. 8 and 8
d. 16 and 8

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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