

**Class: 11**

**Subject: biology**

**Topic: Cell Cycle and Cell Division**

**No. of Questions: 20**

**Duration: 60 Min**

**Maximum Marks: 60**

1. The genes which on activation produce malignant neoplasm are

- A. Pleiotropic genes
- B. Multiple genes
- C. Oncogenes
- D. Neonatal genes

Answer: C

2. During the meiotic division the

- A. Homologous chromosomes are separated
- B. The linkage is disturbed
- C. The homologous chromosomes do not segregate
- D. All the above

Answer: A

3. Invisible stage of M-phase is

- A.  $G^1$  - Phase
- B. S-phase
- C.  $G^2$  - Phase
- D.  $G^0$ - Phase

Detailed Answer:

Answer: B

4.  $G_1$ , S and  $G_2$  are stages of

- A. Interphase
- B. Prophase
- C. Metaphase
- D. Anaphase

Answer: A

5. During mitosis the number of chromosomes is

- A. Halved
- B. Unchanged
- C. Doubled
- D. Tripled

Detailed Answer:

Mitosis is equational division. The number of chromosomes remains the same in two daughter cells as it was in the mother cell

Answer: B

6. Separation of homologous chromosomes is called

- A. Dispersion
- B. Bivalent formation
- C. Disjunction
- D. Crossing over

Answer: C

7. What precedes reformation of nuclear envelope in M-phase

- A. Decondensation of chromosomes and appearance of nuclear lamina
- B. Transcription of chromosomes and reassembly of nuclear lamina
- C. Formation of phragmoplast and contraction ring
- D. Formation of contraction ring and transcription from chromosomes

Answer: A

8. Crossing over occurs between

- A. Sister chromatids
- B. Nonsister chromatids
- C. Homologous chromosomes
- D. Any two chromosomes

Detailed Answer:

It is between nonsister chromatids of homologous chromosomes.

Answer: C

9. In meiosis, chromosomes replicate during

- A. Prophase I
- B. Prophase II
- C. Telophase I
- D. Interphase

Answer: D

10. In mitosis, chromosome duplication occurs during

- A. Interphase
- B. Prophase
- C. Late prophase
- D. Late telophase

Detailed Answer:

It occurs during the S-phase of interphase

Answer: A

11. Which one ensures the maintenance of chromosome number generation after generation?

- A. Mitosis
- B. Splicing
- C. Meiosis
- D. Metamorphosis

Detailed Answer:

Due to meiosis, the chromosome numbers in the gamete cells (sperm/ ovum) is reduced to half (in human the sperm and the ovum contain  $n=23$  chromosomes). When those two unite, it retrieves the

diploid chromosome number 46 in human zygotes and maintains the constant number generation after generation

Answer: C

12. Spindle fibres of dividing cell are made of

- A. Tubulin
- B. Myosin
- C. Actin
- D. Collagen

Answer: A

13. Meiosis can be studied in angiosperms in

- A. Dividing pollen mother cells in anther
- B. Dividing cells of vascular cambium
- C. Shoot apical meristem
- D. Root apical meristem

Answer: A

14. Mitotic anaphase differs from metaphase in possessing

- A. Same number of chromosomes and same number of chromatids
- B. Half number of chromosomes and half number of chromatids
- C. Half number of chromosomes and same number of chromatids
- D. Same number of chromosomes and half number of chromatids

Detailed Answer:

During anaphase, each chromosome is split into two chromatids through their centromeres. Each chromatid with half of the centromere moves to two different poles. Hence the number of chromosome remains the same but the the number of chromatids in each daughter cell is reduced to half

Answer: D

15. In leukemia there is tremendous increase in the numbers of

- A. Red blood corpuscles
- B. Immature cells
- C. White blood corpuscles
- D. Both white blood cells and immature blood cells

Detailed Answer:

Acute leukemia is characterized by the rapid increase of immature blood cells. This crowding makes the bone marrow unable to produce healthy blood cells

Answer: D

16. Segregation of mendelian factors occurs during

- A. Diplotene
- B. Anaphase I
- C. Zygotene/Pachytene
- D. Anaphase II

Detailed Answer:

Mendelian factors are nothing but the genes present in the homologous chromosomes. During Anaphase I of meiosis I, the homologous chromosomes move towards the opposite poles, hence the Mendelian factors also segregate along with them

Answer: B

17. Higher plants differ from animal's in

- A. Disappearance of nucleolus during prophase
- B. Kinetochores
- C. Spindle microtubules
- D. Anastral spindle

Detailed Answer:

Higher plant cells do not have a centriole. The microtubules of the cytoskeleton forms the spindle apparatus during the cell division.

Hence, they lack the astral spindle fibres originating from the centrioles in animal cells

Answer: D

18. C present in coal tar is

- A. Nitrosodimethylene
- B. 3, 4-benzopyrene
- C. 2-naphthylamine
- D. 4-amino biphenyl

Answer: B

19. Chromosome replication occurs during

- A. Metaphase
- B. S-phase
- C. Anaphase
- D. G2-Phase

Answer: B

20. What is the stage of mitosis when chromosomes separate and move towards poles?

- A. Prophase
- B. Metaphase
- C. Anaphase
- D. Telophase

Answer: C