BIOLOGY

BOOKS - MODERN PUBLISHERS

BIOLOGY (HINGLISH)

CELL CYCLE AND CELL DIVISION

Practice Problems Interphase

1. Define cell reproduction.

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2. Name two processes involved in cell cycle.

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3. What is interphase?

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4. Name three phases of interphase.

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5. Give the phase of DNA replication in interphase.

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Practice Problems Amitosis And Mitosis

1. Why is amitosis called direct cell division?

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2. What is Amitosis cell division?

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3. What is draewback of amitosis.

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4. Why is mitosis called equational division ?

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5. Who gave the term mitosis?

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6. Differentiate karyokinesis and cytokinesis.

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7. What is kintochore? What is its function.

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8. Name the phase of mitosis of longest duration.

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9. Name two types of spindel fibre.

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10. What is cell division?

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11. What is Mitosis cell division?

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12. Give one significance of metosis.

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13. What is centromere?

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14. How does the cytokinesis of dividing plant cell and animal cell differ from each other?

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15. Give one significance of meiosis

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Practice Problems Meiosis

1. What is nature of daughter cell produced by meiosis?

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2. Who gave the term miosis?

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3. Give the site of occurrence of meiosis?

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4. Define synapsis.

5. Define crossing over .

6. What is Kinetochore?

7. Define Cell Division

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8. What is interphase?

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9. Why is meiosis called reductional division?

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10. Give one significance of meiosis.

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Ncert File Ncert Exercise Question

1. What is average cell cycle span for a mammalian cell?

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2. Distinguish between cytokinesis from karyokinesis?

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3. Describe the events taking place during interphase.

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4. What is G_0 (quiescent phase) of cell cycle?

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5. Why is mitosis called equational division?

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6. Name the stage of cell cycle at which one of the following events occur:

(i) Chromosomes are moved to spindle equator

(ii) Centromere splits and chromatids separate

(iii) Pairing between homologous

chromosomes takes place

(iv) Crossing over between homologous chromosomes takes place

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7. Describe the following: (a) synapsis (b) bivalent (c) chiasmata

Draw a diagram to illustrate your answer.

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8. How does cytokinesis in plant cells differ from that in animal cells?

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9. Find examples where the four daughter cells from meiosis are equal in size and where they are found unequal in size.

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10. Distinguish anaphase of mitosis from anaphase I of meiosis.

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11. List the main differences between mitosis and meiosis.

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12. What is the significance of meiosis?

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13. Discuss about

(i) haploid insects and lower plants where cell-division occurs, and

(ii) some haploid cells in higher plants where cell-division does not occur.

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14. Can there be mitosis without DNA replication in S phase?

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15. Can there be DNA replication without cell division?

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16. Analyse the events during every stage of cell cycle and notice how the following two parameters change

(i) Number of chromosomes (N) per cell

(ii) Amount of DNA content (C) per cell

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Ncert Exemplar Problems A Multiple Choice Questions

1. Meiosis results in :–

A. Production of gametes

B. Reduction in the number of chromosomes

C. Introduction of variation

D. all of the above

Answer:

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2. At which stage of meiosis does the genetic constitution of gametes is finally decided?

A. Metaphase

B. Anaphase II

C. Metaphase II

D. Anaphase I

Answer:

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3. Meiosis occurs in organisms during

A. Sexual reproduction

B. Vegetative reproduction

C. Both sexual and vegetative reproduction

D. None of the above

Answer:

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4. During anaphase -I of meiosis

A. Homologous chromosomes separate

B. Non-homologous autosomes separate

C. Sister chromatids separate

D. Non-sister chromatids separate

Answer:

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5. Mitosis is characterised by

A. Reduction division

B. Equal division

C. Both reduction and equal division

D. None of the above

Answer:

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6. A bivalent of meiosis i consists of

A. Two chromatide and one centromere

B. Two chromatids and two centromere

C. four chromatids and two centromere

D. Four chromatids and four centrumncre

Answer:

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7. Cells which are not dividing are likely to be at

A. G_1

B. G_2

C. G_0

D. S phase

Answer:

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8. Which of the events listed below is not observed ruing mitosis?

A. Chromatin condensation

B. Movement of centroles to opposite poles

C. Appearance of chromosomes with two chrorritids Joned together at the centromere

D. Crossing over

Answer:

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9. 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 coun

Answer:

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10. 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

Answer:

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Ncert Exemplar Problems Very Short Answer Type Question

1. Between a prokaryote and a eukaryote, which cell has a shorter cell division time ?

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2. Which of the phases of cell cycle is of longest duration ?

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3. Name a stain commonly used to colour chromosomes.

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4. Which tissue of animals and plants exhibits meiosis ?

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5. Given that the average duplication time of E. coli is 20 minutes, how much time will two E. coli cells take to become 32 cells ?

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6. Which part of the human body should one use to demonstrate stages in mitosis ?

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7. What attributes does a chromatid requires to be classified as a chromosome ?

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8. The diagram shows a bivalent at Prophase - 1 of melosis. Which of the four chromatids can Cross over? 

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9. If a tissue has at a given time 1024 cells, how many cycles of mitosis had the original parental single cell undergone ?

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

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11. At what stage of cell cycle does DNA synthesis take place ?

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12. It is said that the one cycle of cell division in human cells (eukaryotic cell) takes 24 hours. Which phase of the cycle, do you think occupies the maximum part of cell cycle ?

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13. It is oberved that heart cells do not exhibit cell division. Such cells do not divide further and exit... Phase to enter an inactive stage called.... of cell cycle. Fill in the blanks

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14. In which phase of meiosis are the following formed ? Choose the answers from hint points given below.

(a) Synaptonemal complex .....

(b) Recombination nodules ....

(c) Appearance/activation of enzyme recombinase....

(d) Termination of chiasmata.... (e) Interkinesis....

(f) formation of dyad of cells....

Hint (a) Zygotene, (b) Pachytene,

(c) Pachytene, (d) Diakinesis,

(e) After Telophase-I/before prophase of meiosis-II,

(f) Telophase-I/after meiosis-I

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Ncert Exemplar Problems Short Answer Type Question

1. State the role of centrioles other than spindle formation.

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2. Mitochondria and plastids have their own DNA (genetic material). What is known about their fate during division like mitosis ?

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3. Label the diagram and also determine the stage at which this structure is visible. 

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4. A cell has 32 chromosomes. It undergoes mitotic division. What will be the chromosme number (n) during metaphase ? What would be the DNA content (C) during anaphase ?

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5. While examining the mitotic stage in a tissue, one finds some cells with 16 chromosomes and some with 32 chromosomes. What possible reasons could you assign to this difference in chromosomer number. Do you think cells with 16 chromosomes could have arisen from cells with 32 chromosomes or vice-versa ?

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6. The following events occur during the various phases of the cell cycle. Name the phase against each of the events.

(a) Disintegration of nuclear membrane.....

(b) Appearance of nucleolus.....

(c) Division of centromere ....

(d) Replication of DNA...

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7. Mitosis result in producing two cell which are similar to each other. What would be the consequence if each of the following irregularities occur during mistosis ?

(a) Nuclear membrane fails to disintegrate

(b) Duplication of DNA does not occur

(c) Centromeres do not divide

(d) Cytokinesis does not occur

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8. Both unicellular and multicellular organisms undergo mitosis. What are the differences, if any, oberved in the process between the two ?

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

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10. Two key events take place, during S-phase in animal cells, DNA replication and duplication of centriole. In which parts of the cell there events occur ?

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11. Comment on the statement - meiosis enables the conservation of specific chromosome number of each species even

through the process results in reduction of chromosome number ?

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12. Name a cell that is found arrested in diplotene stage for months and years. Comment in 2-3 lines, how it completes cell cycle?

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13. How does cytokinesis in plant cells differ from that in animal cells?

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Ncert Exemplar Problems Long Answer Type Question

1. Comment on the statement-telophase is reverse of prophase.

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2. What are the various stages of meiosis prophase-I?Enumerate the chromosomal events during each stage.

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3. What is homologous chromosome?

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4. Write brief note on the following: (a) Synaptonemal complex. (b) Metaphase plate.

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5. Write briefly the significance of mitosis and meiosis in multicellular organism

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6. An organism has two pair of chromosomes (i.e., chromosome number = 4), Diagrammatically represent the chromosomal arrangement during different phase of meiosis -II

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Hots Higer Order Thinking Skills Brain Twisting Very Short Answer Question

1. Which events occur during S-phase of interphase?

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2. What happens to a cell lying in G1 phase?

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3. State drawback of amitosis

Watch Video Solution

4. What are kinetochores?State their function

Watch Video Solution

5. What is Meiosis cell division?

Watch Video Solution

6. What is Homologous chromosome?

Watch Video Solution

7. What are phragmoplasts?

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8. Name the stage in which synapsis occurs.

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9. Define Bivalent

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Hots Higer Order Thinking Skills And Brain Twisting Short Answer Question

1. How does cytokinesis occurs in plant cell?

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Hots Higer Order Thinking Skills And Brain Twisting Short Answer Question

1. What happens to the cell in G2 phase?

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2. Define Interphase

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3. State the differences between Cytokinesis and karyokinesis

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4. Enlist the differences between cytokinesis in plant cell and in animal cell.

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5. What is Equitional cell division?

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6. Meiosis is essential for keeping the chromosome number constancy generation

after generation.

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7. Define interphase. Erilist the events occurring in its subphases.

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8. How cytokinesis occurs in animal cell?

Watch Video Solution

9. What happens during S phase?

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Hots Higer Order Thinking Skills And Brain Twisting Long Answer Question

1. Differentiate between mitosis and meiosis.

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Quick Memory Test Say True Or False

1. Meiosis occurs in root tip.

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2. Centromeres split and chromatids move apart during anaphase.

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3. Exchange of segments of chromosomes occurs during meiosis.

Watch Video Solution

4. Chromosomes line up at the equator of spindle in anaphase.

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5. Anaphase-I chromosomes having distinct chromatids are called dyad.

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6. Disjunction is the act of pairing of homologous chromosomes during Anaphase.

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7. Transition phase between prophase and metaphase is called late prophase

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8. Swollen areas present on the prophase-I chromosomes are called chromatin.

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9. Nucleoprotein complex present between synapsed chromosomes is called synaptonemal complex,

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10. In anaerobic tissues, glycolysis provides energy for cell division.

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11. Chromatids become clear only during diakinesis of prophase-I.

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12. During meiosis, the state of nucleus having long thread-like chromatin fibres is called interkinesis.

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13. The number of bivalents is half the number of total chromosomes.

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14. The cell cycle involves amitosis, mitosis and meiosis.

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15. Anastral spindle occurs in animal cells.

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16. Mitosis occurs only in multicellular organisms.

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Quick Memory Test A Say True Or False

1. Both mitosis and meiosis occur in germ cells.

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Quick Memory Test B Complete The Missing Links

1. Somatic cells multiply by .....

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2. The region of the attachment of chromosome to spindle fibers is called

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3. "The spindle formed in the dividing plant cell is .....

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4. Asters are formed from .....

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5. .....is the pairing of homologous chromosomes during zygotene

Watch Video Solution

6. Exchange of genetic material between non-sister chromatids is .....

Watch Video Solution

7. Cell-plate is formed of smaller units called .....

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8. G_1, $(S)$and G-2 are sub-phases of .....

Watch Video Solution

9. Chromosomes line up at the equator of the spindle in .....

Watch Video Solution

10. In meiosis, the reduction of DNA amount per chromosome occurs in .....

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11. Spindle fibres are chemically formed of .....

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12. ..... is the division of nucleus while ..... is the division of cytoplasm.

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13. ..... of plant flowers are the best material to study meiosis.

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14. Chiasmata are the expressions of .....

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15. A cell has 20 chromosomes. After meiosis ..... chromosomes are present in the

daughter cells.

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16. In animal cytokinesis, the cleavage extends .....

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17. Colchicine arrests cell division in ..... stage.

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Quick Memory Test C Choose The Correct Alternative

1. Mitochondria and centrioles duplicate in G_0 /G_1/G_2, phase of interphase

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2. Interkinesis lies between two mitotic division/meiosis-I and meiosis-II.

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3. Genetic homogeneity is kept by mitosis.meiosis.

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4. Mitosis occurs in only somatic cells/both somatic and germ cells.

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5. Point of attachment of chromosomal fibre of spindle is kinetochore/centromere.

6. In anaphase, moving V-shaped chromosome is metacentric/submetacentric.

7. In animal cell, cytokinesis occurs by cell plate/cell furrow formation.

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8. In plant cell, spindle is anastral/amphiastral.

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9. Meiosis-I is also called homotypical/heterotypical division.

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10. Synaptonemal complex appears in Leptotene/zygotene and disappears in pachytene/diplotene.

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11. Terminalisation is completed in diplotene/ diakinesis.

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12. Disjunction occurs in Anaphase-I' /Anaphase-II.

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13. Pairing of homologous chromosomes is called synapsis/desynapsis.

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14. Haploidy in DNA amount per chromosome occurs in Anaphase-I/Anaphase-II.

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15. Humans have gametic meiosis/zygotic meiosis.

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Revision Exercise Very Short Answer Question

1. Why is amitosis called incipient cell division?

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2. Name four sub-phases of cell-cycle.

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3. Give the terms for direct cell division, equational division and reductional division

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4. Name the stages of synapsis and crossing over.

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5. Give the tests for nuclear division and cytoplasmic division.

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6. Name the cell divisions which help in growth and recombination of genes.

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7. Which two types of fibres are found in the spindle?

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8. Define chiasmata.

Watch Video Solution

9. In which phase of interphase DNA replication occurs ?

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10. Which type of cell division occurs in meristematic cell of root apex?

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11. What is cell cycle?

12. Name the stage during which astral and spindle fibres disappear and nuclear membrane and nucleoli reappear.

13. Name the sub-phases of prophase-I of Meiosis.

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14. Which type of colling is found in mitosis and meiosis?

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15. What is kinetochore?

Watch Video Solution

16. What are meiocytes?

Watch Video Solution

17. In which stage, actual reduction of chromosome number occurs in meiosis?

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18. Give the term for the failure of separation of homologous chromosomes.

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19. Define karyokinesis.

Watch Video Solution

20. What is disjunction?

Watch Video Solution

21. Give the significance of synaptonemal complex

Watch Video Solution

22. What is significance of meiosis-II?

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23. Define cytokinesis.

Watch Video Solution

24. What is congression?

Watch Video Solution

25. Define crossing over.

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Revision Exercise Short Answer Question

1. Name three phases of interphase. Give one major event of each phase.

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2. Why is mitosis called equational division? Give the occurrence of mitosis

Watch Video Solution

3. What is kinetochore? Give its function.

Watch Video Solution

4. Give two advantages of mitosis.

Watch Video Solution

5. How does anastral and amphiastral spindle differ from each other?

Watch Video Solution

6. Define meiosis. Give the occurrence of meiosis.

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7. Distinguish between metaphase of mitosis and metaphase-I of meiosis.

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8. Why is meiosis essential in sexually reproducing organisms ?

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9. Name the forces which help in chromosomal movement during cell division.

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10. What is interphase? Why was it previously known as resting phase?

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11. What is G.-phase? What changes occur in it?

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12. Give the structure of spindle apparatus.

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13. Distinguish between plant and animal cell mitosis.

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14. What is disjunction? Describe the stage when it occurs.

Watch Video Solution

15. Why is meiosis called the reductional division,whereas mitosis is called equational division?

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16. What is synaptonemal complex? Give its significance.

Watch Video Solution

17. Differentiate between gametic meiosis and zygotic mciosis.

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18. Define the term synapsis. Name the stage of cell cycle when it occurs.

Watch Video Solution

19. Define the term crossing-over. Name the stage of cell cycle when it occurs.

Watch Video Solution

20. Define the term chiasmata. Name the stage of Prophase-I when it occurs.

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21. How does cell division of a typical plant cell differ from that of a typical animal cell?

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22. What is the significance of meiosis?

Watch Video Solution

23. What are homologous chromosomes? What happens to homologues during meiosis?

Watch Video Solution

24. Anaphase-I of meiosis differs from anaphase of mitosis in one essential way.Describe the diffrence and explain how it effects the daughter cells.

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25. Why does a Multicellular organism require two type of cell division?Which of the two

produces the greater number of cells?

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26. Discuss the significance of mitosis

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27. Why do we term meiosis-I as reductional division and mitosis as equational division?

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28. Differentiate three types of meiosis.

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29. List the most important feature of the following stages :

(i) S-phase, (ii) Zygotene, (iii) Pachytene: (iv) Anaphase-I

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30. Differentiate between mitosis and meiosis.

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Revision Exercise Long Answer Question

1. Describe the events taking place during interphase.

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2. A well-known biologist stated that the life history of an organism can be summed up as "gametic fusion,equational division and reductional division."comment.

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3. Differentiate three types of meiosis.

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4. Mention the differences between mitosis and meiosis.

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5. What are homologous chromosomes? What happens to homologous chromosomes during meiosis?

Watch Video Solution

6. Why does a Multicellular organism require two type of cell division?Which of the two produces the greater number of cells?

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Competition File Objective Type Question A Multiple Type Questions Mcqs From Aimpt Other Competitive Examination

1. The replication of DNA is a pre-requisite for a cukaryotic cell to undergo division. During

the cell cycle, the DNA replicates in

A. S-phase

B. G_1-phase

C. G_2-phase

D. M-phase

Answer: A

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2. Crossing over that results in genetic recombination in higher organisms occurs between

A. Sister chromatids of a bivalent

B. Non-sister chromatids of a bivalent

C. Two daughter nuclei

D. Two different bivalents

Answer: B

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3. In the somatic cell cycle.

A. In G_1.-phase, DNA content is double the amount of DNA of original cell

B. DNA replication occurs in S-phase

C. A short interphase is followed by a long M-phase

D. G_2-phase follows mitotic phase

Answer: B

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4. If you are provided with root-tips of onion in your class and are asked to cont the chromosmes, which of the following stages can your most convenintly look into.

A. Metaphase

B. Telophase

C. Anaphase

D. Prophase

Answer: A

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5. Differentiated celll areests at which stage

A. G_1

B. G_2

C. G_0

D. M

Answer: C

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6. Centromere is required for

A. Transcription

B. Crossing over

C. Cytoplasmic cleavage

D. Movement of chromosomes towards poles

Answer: D

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7. The number of mitotic cell division required to produce 256 cells from single cell would be

A. 10

B. 12

C. 6

D. 8

Answer: D

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8. In meiosis-I, a bivalent is an association of

A. Four chromatids and four centromeres

B. Two chromatids and two centromeres

C. Two chromatids and one centromere

D. Two chromatids and four centromeres

Answer:

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9. In meiosis chromosome number becomes

A. Half of its parent chromosome number

B. Same as that of parent chromosome number

C. One fourth of its parent chromosome number

D. None of the above

Answer: A

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10. A cell plate is laid down during

A. Cytokinesis

B. Karyokinesis

C. Interphase

D. None of these

Answer: A

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11. Sudden and abnormal mitosis in an organ will frequenily lead to

A. Zygote

B. Cancer

C. New organ

D. Gastrula

Answer: B

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12. Mitotic spindle have main protein

A. Tubulin

B. Myosin

C. Tropomyosin

D. Dynein

Answer: A

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13. DNA replicates during

A. Prophase

B. S-phase

C. G_1-phase

D. G_2-phase

Answer: B

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14. In mitosis, the number of chromosome sets in daughter cells will be:

A. Different from parent cells

B. Half of the parent cells

C. Double of the parent cells

D. Same as in parent cells

Answer: D

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15. In meiosis, synapsis occurs during

A. Interphase

B. Prophase

C. S-phase

D. Leptotene

Answer: B

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16. Which cell organelle is not bound by any membrane?

A. Mitochondria

B. Chloroplast

C. ER

D. Ribosome

Answer: D

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17. Cell division of bacteria is of:

A. Mitotic

B. Meiotic

C. Amitotic

D. None of these

Answer: C

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18. Which of the following organelles is common to plants and animals?

A. Chloroplast

B. Centriole

C. Mitochondria

D. Cell wall

Answer: C

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19. Which one of the following precedes reformation of the nuclear evelope during m-phase of the cell cycle

A. Decondensation from chromosomes and reassembly of nuclear lamina

B. Transcription from chromosomes and reassembly of nuclear lamina

C. Formation of contractile ring and formation of the phragmoplast

D. Formation of contractile ring and transcription from chromosomes

Answer: A

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20. When synapsis is complete all along the chromosomes, the cell is said to have entered a stage called

A. Zygotene

B. Pachylene

C. Diplotene

D. Diakinesis

Answer: B

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21. Spindle fibres are made up of

A. Tubulin

B. Humulin

C.) Intermediate filament

D. Flagellin

Answer: A

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22. Mitosis is: (1) Reduction in chromosome number (2) Karyokinesis (3) Formation of four daughter nuclei (4) Cytokinesis

A. 1, 2 and 3 are correct

B. 1 and 2 are correct

C. 2 and 4 are correct

D. 1 and 3 are correct

Answer: C

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23. Variations appear during meiosis due to

1 . Independent assortment

2. Crossing over

3. Linkage

4. Glycolysis

Select the correct code

A. 1, 2 and 3 are correct

B. 1 and 2 are correct

C. 2 and 4 are correct

D. 1 and 3 are correct

Answer: B

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24. Consider the following statements

(1) In plant cells, cytokinesis starts with the formation of phragmoplasts

(2) Phragmoplast comprises interzonal microtubules and Golgian vesicles

(3) Primary cell wall is produced by microtubules

(4) Phragmoplasts are formed from the nucleus

A. 1, 2 and 3 are correct

B. 1 and 2 are correct

C. 2 and 4 are correct

D. 1 and 3 are correct

Answer: A

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25. Main protein of mitotic spindle fibres is

A. Tubulin

B. Myosin

C. Tropomyosin

D. Dynein

Answer: A

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26. Crossing over occurs in:

A. Zygotene

B. Leptotene

C. Pachytene

D. Diplotene

Answer: C

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27. Pick out the correct statements

(A) Mitosis takes place in the somatic cells and meiosis takes place in the germ cells

(B) During mitosis, the DNA replicates once for one cell division and in meiosis the DNA replicates twice for two cell divison

(C) Mitosis and meiosis occur both in sexually and asexually reproducing organisms

A. A only

B. B only

C. C only

D. A & B only

Answer: A

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28. In meiosis, the chromosomes replicate during :

A. Prophase

B. Metaphase

C. Anaphase

D. Interphase

Answer: D

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29. Chromosomes are visible with chromatids at one of the following phases of mitosis :

A. Interphase

B. Prophase

C. Metaphase

D. Anaphase

Answer: B

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30. Which of the following sequence is a correct one for a meiotic cycle?

A. $G(\_1) \rightarrow S \rightarrow G_2 \rightarrow M \rightarrow G_1$

B. $G(\_1) \rightarrow G_2 \rightarrow S \rightarrow M \rightarrow G_2$

C. $G_2 \rightarrow S \rightarrow G_1 \rightarrow M \rightarrow G_2$

D. $S \rightarrow G(\_1) \rightarrow G_2 \rightarrow M \rightarrow$

Answer: A

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31. Chromosomes replicate in which stage of meiosis?

A. Prophase- I

B. Prophase-II

C. Telophase

D. Interphase

Answer: D

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32. Given below is a schematic break up of the phases/stages of cell cycle.  Which one of the following is correct indication of the stage/phase in the cell cycle?

A. B-Metaphase

B. C-Karyokinesis

C. D-Synthetic phase

D. A-Cytokinesis

Answer: C

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33. Synapsis occurs between

A. A male and a female gamete

B. mRNA and ribosomes

C. Spindle fibres and centromere

D. Two homologous chromosomes

Answer: D

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34. DNA replication occurs during

Or

The replication of centrioles occurs during

Or

G_1, G_2 and S phaes are seen in which phase of the cell cycle

A. Metaphase

B. Prophase

C. Interphase

D. Anaphase

Answer: C

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35. During the G_1 phase of cell division

A. RNA and proteins are synthesized

B. Pre-mitotic DNA is synthesized

C. Post-mitotic DNA is synthesized

D. Cell undergoes duplication

Answer: A

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36. Crossing over occurs during

A. Leptolene

B. Zygotene

C. Pachytene

D. Diplotene

Answer: C

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37. study of mitosis in laboratory is Best material for the :

A. Anther

B. Root tip

C. Leaf tip

D. Ovary

Answer: B

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38. Polyploidy can be produced artificially by :

A. Colchicine

B. Inbreeding

C. Line breeding

D. Self pollination

Answer: A

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39. Recombination is involved in the process of

:

A. Cytokinesis

B. Spindle formation

C. Crossing over

D. Chromosome duplication

Answer: C

Watch Video Solution

40. Which of the following is unique to mitosis and not a part of meiosis

A. Homologous chromosomes behave independently

B. Chromatids separate during anaphase

C. Homologous chromosomes pair and form bivalents

D. Homologous chromosomes crossover

Answer: A

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41. Which of the following chracters is related with telophase

A. Formation of muclear merobrane

B. Formation of nucleolus

C. Elongation of chromosomes

D. Formation of two daughter nuclei

Answer: D

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42. Name the stage of mitosis in which chromosomes are arranged on the equator of spindle

A. Prophase

B. Metaphase

C. Anaphase

D. Telophase

Answer: B

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43. DNA replication occurs during

A. G_1phase

B. S-phase

C. G_2-phase

D. Dividing phase

Answer: B

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44. Compare the statements A and B.

Statement A: Synthesis of DNA takes place in the S-phase of interphase.

Statement B: Every chromosome, during metaphase, has two chromatids. .

Choose the correct description:

A. Statement A is wrong and B is correct

B. Statement A is correct and B is wrong

C. Both the statements A and B are correct and A is the reason for B

D. Both the statements A and Bare correct and A is not the reason for B

Answer: C

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45. Amitosis is shown by

A. Bacteria

B. Euglena

C. Syllis

D. Hydra

Answer: A

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46. The homologous chromosomes follow the process of synapsis in the stage or Pairing of homologous chromosome takes place in

Or

During which stage of meiosis, synaptonemal complex is formed

A. Pachytene

B. Diplotene

C. Diakinesis

D. Zygotene

Answer: D

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47. Which of the following event takes place during Diplotene stage of prophase I of meosis

A. Compaction of chromosomes

B. Formation of synaptinemal complex

C. Formation of recombinational nodules

D. Dissolution of synaptinemal complex

Answer: D

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48. The exchange of segments of non-sister chromatids between chromosomes of a homologous pair is termed

A. Transformation

B. Translocation

C. Crossing over

D. Chromosomal aberration

Answer: C

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49. Crossing over may result in:

A. Addition of genetic material

B. Deletion of genetic material

C. Exchange of genetic material

D. All of these

Answer: C

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50. In mitosis, the chromosomes can be seen most distinctly during :

A. Interphase

B. Prophase

C. Metaphase

D. Telophase

Answer: C

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51. During meiosis I, the bivalent chromosomes clearly appear as tetrads during

A. Diakinesis

B. Diplotene

C. Leptoterie

D. Zygotene

Answer:

Watch Video Solution

52. Which phase comes in between G_1, and G_2 , phases of cell cycle?

A. M-phase

B. G_0.-phase

C. S-phase

D. Interphase

Answer: C

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53. Cell divison can not be stopped in which phase of the cell cycle.

A. $G_1 - phase$

B. G_2-Phase

C. S-phase

D. Prophase

Answer: C

Watch Video Solution

54. Chiasmata formation takes place during

A. Prophase-1

B. Metaphase-I

C. Anaphase-1

D. Telophase-I

Answer: A

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55. Select the correct option with respect to mitosis

A. Chromatids separate but remain in the centre of the cell in anaphase

B. Chromatids start moving towards opposite poles in telophase

C. Golgi complex and endoplasmic reticulum are still visible at the end of prophase

D. Chromosomes move to the spindle equator and get aligned along equatorial plate in metaphase

Answer: D

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56. Select the corret matches

(a) S-phase - DNA replication

(b) Zygotene - Synapsis

(c) Diplotene - Crossing over

(d) Meiosis - Both haploid and diploid cells

(e)Gap 2 phase - Quiescent stage

A. A & B

B. C&D

C. C&E

D. A, C&E

Answer: A

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57. During meiosis, the alleles of the parental pair separate or segragate from each other. How many allele(s) are then transmitted to a gamete

A. Four

B. TWO

C. Six

D. Eight

Answer: D

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58. The stage between two meiotic divisions is called

A. Interphase

B. Cytokinesis

C. Interkinesis

D. Karyokinesis

Answer: C

Watch Video Solution

59. During gamete formation, the enzyme recombinase participates during

A. Metaphase-I

B. Anaphase-II

C. Prophase-I

D. Prophase-II

Answer: C

Watch Video Solution

60. Microtubule depolymerizing durg such as colchicine is expected to

A. Inhibit spindle fomation during mitosis

B. Inhibit cytokinesis

C. Allow mitosis beyond metaphase

D. Induce formation of multiple contractile rings

Answer: A

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61. Which of the following statements is incorrect about G_0 phase

A. Mitosis occurs after G phase

B. Biocatalysts can be used to exit G_0, phase

C. Cell volume goes on increasing during G_0. phase

D. Cell metabolism occurs continuously in G_0, phase

Answer: A

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62. Beads on string like structures of A are seen in B, which further condense to form chromosomes in C stage of cell division. Identify A, B, C.

A. $\begin{matrix} A & B & C \\ \text{chromonema} & \text{chromatin} & \text{Metaphase} \end{matrix}$

B. $\begin{matrix} A & B & C \\ \text{chromatin} & \text{chromatid} & \text{Metaphase} \end{matrix}$

C. $\begin{matrix} A & B & C \\ \text{chromonema} & \text{chromosomes} & \text{Anaphase} \end{matrix}$

D. $\begin{matrix} A & B & C \\ \text{chromonema} & \text{chromatine} & \text{Anaphase} \end{matrix}$

Answer: A

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63. Colchicine is obtained from

A. Poaceae

B. Brassicaceae

C. Malvaceae

D. Liliaceae

Answer: D

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64. A stage in mitosis that starts towards the middle of anaphase and is completed with the telophase is Or Division of cytoplasm after completion of nuclear division is called

A. Cytokinesis

B. Karyokinesis

C. Crossing over

D. Interkinesis

Answer: A

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65. if the number of chromosome in root cell is 14 , then what will be the chromosome number in syergids ?

A. 14

B. 21

C. 7

D. 28

Answer: C

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66. The term synaptonemal complex refers to site of

A. Chromatid separation

B. Spindle attachment

C. Replication

D. Chromosome alignment and recombination

Answer: D

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67. The number of autosomes in a normal human cell is :

A. 44

B. 45

C. 46

D. 48

Answer: A

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68. The chromosomes become gradually visible with compaction of chromatin during the meiotic stage

A. Diplotene

B. Leptotene

C. Zygotene

D. Pachytene

Answer: B

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69. Choose the correctly matched pairs and correct option

(a) Leptotene - chromosomes become invisible

(b) Zygotene - pairing of homologous chromosomes

(c)Pachytene - Dissolution of synaptonemal complex takes place

(d) Diplotene - Bivalent chromosomes appear

as tetrads

(e) Diakinesis - Terminalisation of chiasmata takes place

A. A and B are correct

B. Band D are correct

C. Band I are correct

D. B and C are correct

Answer: C

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70. Which of the following events are not characteristic features of telophase

A. Cchromosome material condensess to form compact mitotic chromosomes

B. Nucleolus, Golgi complex and ER reform

C. Nuclear envelope assembles around the chromosome clusters

D. Centromeres split and chromatids separate

E. Chromosomes cluster at opposite, spindle poles and their identify as discrete elemetns is lost.

A. A, B and Donly

B. A and Donly

C. Band Conly

D. CD and E only

Answer: B

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71. The complex formed by a pair of synapsed homologous chromosomes is called

A. Equatorial plate

B. Kinetochore

C. Bivalent

D. Axoneme

Answer: C

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72. Meiosis takes place in

A. Meiocyte

B. Conidia

C. Gemmule

D.

Answer: A

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73. A stage in cell shown in the figure, Select the answer which gives correct identification of the stage with characteristics

(a) Telophase	Nuclear envelope reforms, Golgi complex reforms.
(b) Late anaphase	Chromosomes move away from equatorial plate, golgi complex not formed.
(c) Cytokinesis	Cell plate formed, mitochondria distributed between daughter cells.
(d) Telophase	Endoplasmic reticulum and nucleolous do not get reformed.

A.

B.

C.

D.

Answer: A

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74. In onion root tip during metaphase stage of mitosis the number of kinetochores will be

A. 4

B. 8

C. 16

D. 28

Answer: D

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75. During which phase(s) of cell cycle amount of DNA in a cell remains at 4C level if the initial amount is denoted an 2C

A. OnlyG_2

B. $G_2$and M

C. G_0. and G_2

D. G_2, and S

Answer: A

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76. In 'S' phase of the cell cycle

A. Chromosome number is increased

B. Amount of DNA is reduced to half

C. Amount of DNA is doubled

D. Amount of DNA is kept same

Answer: C

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77. The enzyme recombinase is required in which stage of meiosis ?

A. Diplotene

B. Diakinesis

C. Pachytene

D. Zygotene

Answer: C

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78. Nuclear envelope is a derivative of

A. SER

B. Membrane of Golgi complex

C. Microtubules

D. RER

Answer: D

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79. A somatic cell that has just completed the S phase of its cells cycle , as compared the the gamete of the same species ,has :

A. Twice the number of chromosomes and twice the amount of DNA

B. Same number of chromosomes but twice the amount of DNA

C. Twice the number of chromosomes but four times the amount of DNA

D. Four times the number of chromosomes and twice the DNA amount

Answer: C

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80. Arrange the following events of meiosis in correct sequence

(a) Crossing over

(b) Synapsis

(c)Terminalisation of chiasmata

(d) Disappearance of nucleolus.

A. (ii),(i),(iv),(iii)

B. (ii),(i),(iii),(iv)

C. (i),(ii),(iii),(iv)

D. (ii),(iii),(iv),(i)

Answer: B

81. The number of chromosomes in meiocyte (2n) in apple is

A. 24

B. 380

C. 34

D. 20

Answer: C

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82. Some cells in adult animals do not divide. They exit no G, phase and enter in an inactive stage called:

A. G_2 phase

B. G_0 phase

C. S-phase

D. M-phase

Answer: B

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83. Which one of the following is the significance of mitosis

A. Restricted to haploid cells

B. Cell repair

C. Increases genetic variability

D. Recombination of chromosomes

Answer: B

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84. In a typical eukaryotic cell cycle, Gap-I synthesis and Gap-2 are those phases included in the

A. Prophase

B. Metaphase

C. Anaphase

D. Interphase

Answer: D

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85. Find the correct statement:

A. During mitosis, Endoplasmic reticulum and nucleolus disappear at early

prophase

B. Chromosome is made up of 2 sister chromatids at anaphase of mitosis.

C. Chromosomes are arranged along the equator during prophase of mitosis

D. Small disc-like structures at the surface of centromeres that appear during metaphase are kinetochores

Answer:

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86. During cell growth, DNA synthesis occurs in:

A. M-phase

B. S-phase

C. G_1-phase

D. G_2-phase

Answer: B

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87. Mechanism that causes a gene to move from one linkage group to another is called

A. Crossing over

B. Inversion

C. Duplication

D. Translocation

Answer: D

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88. When cell has stalled DNA replication fork, which check-point should be predominantly activated?

A. BothG_2/Mand M

B. G_1/S

C. G_2M

D. M

Answer: C

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89. Match the stages of meiosis in Column-I to their characteristic feature in Column-II and select the correct option using the codes given below:

Column-I		Column-II	
(a)	Pachytene	(i)	Pairing of homologous chromosomes
(b)	Metaphase-I	(ii)	Terminalization of chiasmata
(c)	Diakinesis	(iii)	Crossing over takes place
(d)	Zygotene	(iv)	Chromosomes align at equatorial plate

A. $\begin{matrix} 1 & 2 & 3 & 4 \\ iv & iii & ii & i \end{matrix}$

B. $\begin{matrix} 1 & 2 & 3 & 4 \\ iii & iv & ii & i \end{matrix}$

C. $\begin{matrix} 1 & 2 & 3 & 4 \\ i & iv & ii & iii \end{matrix}$

D. $\begin{matrix} 1 & 2 & 3 & 4 \\ ii & iv & iii & i \end{matrix}$

Answer: B

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90. In meiosis crossing over is initiated at

A. Diplotene

B. Pachytene

C. Leptotene

D. Zygotene

Answer: B

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91. Which of the following is not a characteristic feature during mitosis in somatic cells ?

A. Synapsis

B. Spindle fibres

C. Disappearance of nucleolus

D. Chromosome movement

Answer: A

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92. Spindle fibres attach on to:

A. Kinetosome of the chromosome

B. Telomere of the chromosome

C. Kinetochore of the chromosome

D. Centromere of the chromosome

Answer: C

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93. A cell at telophase stage is observed by a student in a plant brought from the field. He tells his teacher that this cell is not like other cells at telophase stage. There is no formation of cell plate and thus the cell is containing more number of chromosomes as compared to other dividing cells. This would result in

A. Polyteny

B. Aneuploidy 1

C. Polyploidy

D. Somaclonal variations

Answer: C

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94. Which of the following options gives the correct sequence of events during meiosis?

A. Condensation $\rightarrow$ Nuclear membrane disassembly $\rightarrow$ Crossing over $\rightarrow$ Segregation $\rightarrow$ Telophase

B. Condensation $\rightarrow$ Nuclear membrane disassembly $\rightarrow$ Arrangement at equator $\rightarrow$ Centromere division $\rightarrow$ Segregation $\rightarrow$ Telophase

C. Condensation $\rightarrow$ Crossing over $\rightarrow$ Nuclear membrane disassembly $\rightarrow$ Segregation $\rightarrow$ Telophase

D. Condensation $\rightarrow$ Arrangement at equator $\rightarrow$ Centromere division $\rightarrow$ Segregation $\rightarrow$ Telophase

Answer: C

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95. Zygotic meiosis is characteristic of :-

A. Marchdrit

B. Fucus

C. Furaria

D. Chlamydomonas

Answer: D

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96. 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

A. Chromosomes will not condense

B. Chromosomes will be fragmented

C. Chromosomes will not segregate

D. Recombination of chromosome arms will occur

Answer: C

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97. The stage during which separatlon of paired homologous chromosomes begins is:

A. Pachylene

B. Diakinesis

C. Diplotene

D. Zygotene

Answer: C

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Competition File Objective Type Question B Cbse Main Examination Questions

1. Answer the following questions based upon the given figure :

What type of division is this? Whether meiotic opand mitotic and which stage?

(b) What is A and B?

("c") Does it represent human chromosomes? Explain.

(d) What is acrocentric chromosome? How many acrocentric chromosomes present in the given diagram

View Text Solution

2. Fill in the blank:

The centriole forms spindle during cell division in ..... cells.

Watch Video Solution

3. At metaphase, chromosmes are attached to the spindle fibres by their

A. Kinetochores

B. Centromeres

C. Satellites

D. Secondary constrictions

Answer:

Watch Video Solution

4. Identify the meiotic sage in which the homologous chromosomes separate while the sister chromatids remain associated at their centrometres. Or In which stage of meiosis homologous chromosomes are segregated

A. Metaphase-1

B. Metaphase-II

C. Anaphase-I

D. Anaphase-II

Answer:

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Competition File Objective Type Question C Matching Type Questions

1. Match the terms is Column A with suitabal terms in Coulmn B:

View Text Solution

Competition File Objective Type Question D Assertion Type Question

1. Assertion : Synapsis is involved pairing of homologous chromosomes during zygotene of meiosis.

Reason : Crossing over produces variations in the cells .

A. If both Assertion and Reason are true and reason is the correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion

C. If both Assertion is true but Reason are false

D. If both Assertion and Reason are false

Answer:

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2. Assertion : Daughter cell produced by meiosis are haploid.

Reason : In meiosis, there is no DNA replication between meiosis -I and meiosis -II.

A. If both Assertionand Reason are true and reason is the correct explation of Assertion

B. If both Assertionand Reason are true but Reason is not the correct explation of Assertion

C. If both Assertion is true but Reason are false

D. If both Assertion and Reason are false

Answer:

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3. Assertion : Chromosomal congression in metaphase is caused by equal pull of the chromosomal fibres of the two poles.

Reason : Metaphase is not an appropriate time for chromosome study.

A. If both Assertionand Reason are true and reason is the correct explation of Assertion

B. If both Assertionand Reason are true but Reason is not the correct explation of Assertion

C. If both Assertion is true but Reason are false

D. If both Assertion and Reason are false

Answer:

Watch Video Solution

4. Assertion : Reduction of chromosome number occurs during anaphase -I

Reason : Non-disjunction occurs during anaphase -I

A. If both Assertionand Reason are true and reason is the correct explation of Assertion

B. If both Assertionand Reason are true but Reason is not the correct explation of Assertion

C. If both Assertion is true but Reason are false

D. If both Assertion and Reason are false

Answer:

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5. Assertion : Karyotypic analysis is scientific study of complete chromosome complement of an individual .

Reason : Karyotypic analysis can be used to

diagnose the pre-natal chromosomal disorders.

A. If both Assertion and Reason are true and reason is the correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion

C. If both Assertion is true but Reason are false

D. If both Assertion and Reason are false

Answer:

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6. Assertion: Meiotic division results in the production of haploid cells.

Reason: Synapsis occurs during zygotene of meiosis.

A. If both Assertionand Reason are true and reason is the correct explanation of Assertion

B. If both Assertionand Reason are true but Reason is not the correct explanation of Assertion

C. If both Assertion is true but Reason are false

D. If both Assertion and Reason are false

Answer:

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7. Assertion Old age is not an illness. It is a continuation of life with decrease capacity for adaptation.

Reason Cessation of mitosis is normal genetically programmed event.

A. If both Assertion and Reason are true and reason is the correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion

C. If both Assertion is true but Reason are false

D. If both Assertion and Reason are false

Answer:

Watch Video Solution

8. Assertion: Among the primates, chimpanzee is is the closest relative of the present day humans.

Reason : The banding pattern in the autosome numbers 3 and 6 of man and chimpanzee is remarkably similar.

A. If both Assertion and Reason are true and reason is the correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion

C. If both Assertion is true but Reason are false

D. If both Assertion and Reason are false

Answer:

Watch Video Solution

9. Assertion. Phase of cell division is also known as formative phase.

Reason. In Formative phase new cells are produced from pre-existing cells through meiosis.

A. If both Assertion and Reason are true and reason is the correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not the correct

explanation of Assertion

C. If both Assertion is true but Reason are false

D. If both Assertion and Reason are false

Answer:

Watch Video Solution

10. Assertion: Reduction division occurs in anaphase-I. So there is no need of meiosis.

Reason: Meiosis-II occurs to separate homologous chromosomes.

A. If both Assertion and Reason are true and reason is the correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion

C. If both Assertion is true but Reason are false

D. If both Assertion and Reason are false

Answer:

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Competition File Objective Type Question E Additional Multiple Choice Question

1. At what stage of the cell cycle are histone proteins synthesized a eukaryotic cell?

A. During entire prophase

B. During telophase

C. During S-phase

D. During G_2-phase

Answer: C

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2. Centromere is required for

A. Transcriptiori

B. Crossing over

C. Cytoplasmic deavage

D. Movement of chromosomes towards poles

Answer: D

Watch Video Solution

3. In meiosis, the daughter cells are not similar to that of parent because of :

A. Crossing over

B. Synapsis

C. Both (a) and (b)

D. None of these

Answer: A

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4. When synapsis is complete all along the chromosomes, the cell is said to have entered a stage called

A. Zygotene

B. Pachytene

C. Diplotene

D. Dlakinesis

Answer: B

 Watch Video Solution

5. Meiotic crossing over involves :

A. Non-sister chromatids of a pair of homologous chromosomes

B. Sister chromatids

C. chromatids of non-homologous chromosomes

D. None of the above

Answer: A

Watch Video Solution

6. Synthesis of RNA and proteins takes place in

:

A. M-phase

B. S-phase

C. G_1phase

D. G_1 and G_2phase

Answer: D

Watch Video Solution

7. During the meiotic division the

A. Homologous chromosomes are separated

B. Homologous chromosomes do not segregate

C. The linkage is disturbed

D. All of the above

Answer: A

Watch Video Solution

8. If a cell has twice as much DNA as in a normal functional cell,It means that the cell

A. Is preparing to divide

B. Has completed division

C. Has reached the end of life span

D. Has ceased to function

Answer: A

 Watch Video Solution

9. During cell division, the spindle fibres attaches to

A. Kinetochore

B. Centromere

C. Centriole

D. Secondary constriction

Answer: A

Watch Video Solution

10. Cyclin is required for cell cycle. Which other molecule is essential for completion of cell cycle ?

A. CCK

B. CKc

C. CdK

D. CKd

Answer: C

Watch Video Solution

11. When does synapsis occur in meiosis?

A. Zygotene

B. Leptotene

C. Diplotene

D. Pachytene

Answer: A

Watch Video Solution

12. Astral rays arise from

A. Centriole

B. Cytoplasm

C. Chromatid

D. Centromere

Answer: A

 Watch Video Solution

13. Meiotic cell division is also termed as reduction division because of

A. A gamele becomes involved

B. Number of chromosomes becomes halved

C. Number of chromosomes becomes doubled

D. Chromosomes are eliminated

Answer: B

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14. A diploid living organism develops from zygote undergoes which type of repeated cell division?

A. Meiosis

B. Amitosis

C. Mitosis

D. Segmentation

Answer: C

Watch Video Solution

15. Synaptonemal complex is observed during cell division in :

A. Meiotic prophase

B. Mitotic prophase

C. Meiotic metaphase

D. Mitotic telophase

Answer: A

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16. Zygotic meiosis occurs in

A. Dryopteris

B. Marchanti

C. Pinus

D. Chlamydomonas

Answer: D

Watch Video Solution

17. During G_1 phase of cell division

A. RNA and proteins are synthesized

B. DNA and proteins are synthesized

C. Cell prepares for cell division

D. Cell undergoes duplication

Answer: A

 Watch Video Solution

18. In which of the following stages, chromosomes are arranged at equatorial plate?

A. Metaphase

B. Anaphase

C. Telophase

D. Prophase

Answer: A

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19. Spindle fibres are made up of

A. Tubulin

B. Hummulin

C. Telephose

D. Flagellin

Answer: A

 Watch Video Solution

20. The drug colchicine has inhibitory effect on cell cycle in which stage?

A. G_1

B. S

C. Metaphase

D. G_2

Answer: C

Watch Video Solution

21. Type of sexual reproduction in protists, bearing diploid chromosome is :

A. Zygotic meiosis

B. Binary fission

C. Cyst fomation

D. Gametangial meiosis

Answer: D

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22. Number of mitotic divisions required for the formation of 128 cells :

A. 127

B. 32

C. 12

D. 7

Answer: D

Watch Video Solution

23. Chromosomes separate during

A. Prophase

B. Metaphase

C. Anaphase

D. Telophase

Answer: C

Watch Video Solution

24. In cell cycle, DNA replication occurs during :

A. G_1- phase

B. S-phase

C. Metaphase

D. Anaphase

Answer:

Watch Video Solution

25. At what stage of the cell cycle are histone proteins synthesized a eukaryotic cell?

A. During entire prophase

B. During telophase

C. During S-phase

D. During G_2-phase

Answer: C

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26. Replication of centriole occurs during

A. Interphase

B. Prophase

C. Early telophase

D. Lale telophase

Answer: A

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27. L-shaped chromosomes are also called :

A. Acrocentric

B. Telocentric

C. Sub-metacentric

D. None of these

Answer: C

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28. A gymnosperms leaf carries 16 chromosomes. Number of chromosomes in its endosperm shall be

A. 24

B. 16

C. 12

D. 8

Answer: D

29. Colchicine arrests which of the following stage of cell division?

A. Prophase

B. Metaphase

C. Anaphase

D. Telophase

Answer: B

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30. Characteristic of melosis is

A. Two nuclear and two chromosome divisions

B. Two nuclear and one chromosome division

C. One nuclear and two chromosome divisions

D. One nuclear and one chromosome division

Answer: B

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Chapter Practicr Test

1. Why is interphase also called preparatory phase ?

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2. What is peculiar about G_0, phase?

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3. Define crossing over.

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4. Which cell division is called equitional cell division?

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5. What is kinetochore? Give its significance.

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6. Enlist the peculiar events which occur during Sphase and G_2.-phase of interphase.

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7. Define Centromere.

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8. State two benefits of mitosis.

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9. What is telocentric chromosome?

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10. Define Metacentric chromosome

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11. List the event which occurs during following stages:

1) Zygotene (ii) Pachytene (iii) Anaphase-I

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12. Enlist two significance of meiosis.

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13. Define homologous chromosome

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14. What is centromere?

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15. What is Interphase?

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16. What are the substages of Interphase?

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Chapter Practicr Test Section A Multiple Choice Question

1. Interphase of cell cycle involves:

A. Duplication of centrioles and mitochondria

B. DNA replication

C. Synthesis of RNAs, proteins and ATP

D. All of these

Answer: D

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2. Select which of the following phases of mitosis is also called spireme stage?

A. Prophase

B. Metaphase

C. Anaphase

D. Telophase

Answer: A

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3. Which chromosomes appear V-shaped in anaphase movement?

A. Telocentric

B. Acrocentric

C. Submetacentric

D. Metacentric

Answer: D

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4. Pairing of homologous chromosomes occurs during

A. Leptotene

B. Zygotene

C. Pachytene

D. Diplotene

Answer: B

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5. Enzyme recombinase operates during

A. Leptotene

B. Zygotene

C. Pachytene

D. Diplotene

Answer: C

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6. Best stage to study the shape of the chromosomes is:

A. G_2, phase

B. Anaphase

C. Metaphase

D. Prophase

Answer: B

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Chapter Practicr Test Section B Short Answer Type I Question

1. Differentiate betwen G_1, and G_2, subphases of interphase. OR Discuss the significance of mitosis.

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2. How do metaphase of mitosis and metaphase-I of mciosis differ from each other?

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3. What is synaptonemal complex? Give its function.

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4. Discuss the events occuring in S phase of interphase

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Chapter Practicr Test Section C Short Answer Type I Question

1. What is mitotic apparatus? Discuss the differences between mitotic apparatus of a dividing plant cell and a dividing animal cell.

OR

Write a note on significance of meiosis.

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2. Name the stages during which following events occur:

(i) Desynapsis

(ii) Tetrad formation.

(iii) Reduction of amount of DNA per chromosome in meiosis.

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3. Differentiate between cytokinesis of dividing plant and animal cells.

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Chapter Practicr Test Section D Case Based Short Answer Type Question

1. Meiosis is also called reductional division because it halves the chromosome number in the daughter cells than those in the parental

cell. It is so as the parental cell divides twice, while the chromosomes duplicate only once. Meiosis is of three types on the basis of period and site of occurrence of meiosis. Answer the following questions on meiosis:

(i) Name the longest phase of meiosis-I and sequence of its subphase...

(ii) Define crossing over. Give its significance,

(in) State one difference between gametic meiosis and zygotic meiosis.

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Chapter Practicr Test Section D Long Answer Type Question

1. What is Interphase?

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