IIT/NEET - WORK SHEET

Class: XII **Subject: BOTANY**

Topic: CELL CYCLE AND CELL DIVISION

MULTIPLE CHOICE QUESTIONS:

Cell Cycle

1. All organism starts its life with
(a) Single cell (b) Many cells (c) Few cells (d) Few organs

2. The sequence of events by which a cell duplicates its genome, synthesize the other constituent of cells and eventually divides itself into two daughter cells is termed as
(a) Cytology (b) Cell division (c) Cell cycle (d) Cell biology

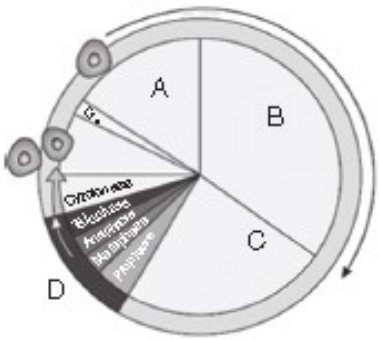
3. Which of the following is correct about cell cycle?
(a) All events occur in coordinated manner.
(b) All events are under genetic control.
(c) DNA synthesis occurs only during one specifi c stage in the cell cycle.
(d) All of these

4. Cell growth (increase in cytoplasm) is a
(a) Continuous process (b) Discontinuous process
(c) Irregular process (d) Retrogressive process

5. Our cell can divide itself once approximately in
(a) 24 hours (b) 24 minutes (c) 24 seconds (d) 24 days

6. Duration of a cell cycle in yeast is approximately
(a) 90 seconds (b) 90 minutes (c) 20 minutes (d) 45 minutes

7. Identify A, B, C and D in the below diagram:



(a) A–G1, B–S, C–G2, D–M Phase (b) A–G2, B–M Phase, C–G1, D–S
(c) A–S, B–G2, C–G1, D–M Phase (d) A–M Phase, B–G1, C–G1, D–S

M Phase

8. M-phase in human cell lasts for
(a) 1 hour (b) 2 hours (c) 23 hours (d) 4 hours

9. Which of the following is correct about Interphase?
(a) It is the phase present between two successive M-phase.
(b) It lasts for more than 95 per cent in the duration of cell cycle in human cell.
(c) It is also known as resting phase. (d) All the above

10. Select the correct matching:

Column I		**Column II**
A. G1 Phase	–	1. Gap 1 Phase
B. Cytokinesis	–	2. Nuclear division
C. Karyokinesis	–	3. Cytoplasmic division
D. S phase	–	4. Synthesis phase

(a) B–1, C–2, A–3, D–4 (b) A–1, C–2, B–3, D–4
(c) D–1, C–2, B–3, A–4 (d) A–1, D–2, B–3, C–4

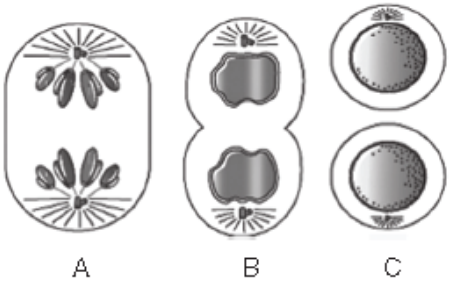
11. G1 phase is not characterized by
(a) Continuous growth (b) Active metabolism
(c) DNA replication (d) Non-replication of DNA

12. S-phase is not characterized by
(a) DNA duplication (b) No increase in chromosome number
(c) DNA replication
(d) Duplication of centriole in nucleus of eukaryotic animal cell

13. What occurs continuously when cell is divided into G1, S and G2 phase?
(a) DNA Replication (b) DNA Duplication
(c) Centriole duplication (d) Growth of cell

14. If a cell has $2n$ number of chromosome in G1 phase, what is the number of chromosome in cell after S-phase?
(a) n (b) $4n$ (c) $2n$ (d) $8n$

15. Identify A, B and C in the below diagram.



(a) A–Interphase, B–Telophase, C–Anaphase
(b) A–Anaphase, B–Telophase, C–Interphase
(c) A–Telophase, B–Interphase, C–Anaphase
(d) A–Interphase, B–Anaphase, C–Telophase

16. The cells which do not divide enter ____ phase from G_1 phase.
(a) S-phase (b) Directly G_2-phase
(c) G_0-phase (d) Any one of these

17. G_0 phase is characterized by
(a) DNA duplication (b) Active metabolism
(c) S-phase (d) M-phase

18. Select the incorrect statement from the following:
(a) In animals, mitotic cell division is only seen in the diploid somatic cells.
(b) Plants can show mitotic division in both haploid and diploid cells.
(c) In an adult's heart, the cells does not divide.
(d) All organisms starts their life cycle from multiple cell.

19. Mitosis is further divided in ____ stages of cytoplasmic division?
(a) 1 (b) 2 (c) 3 (d) None of these

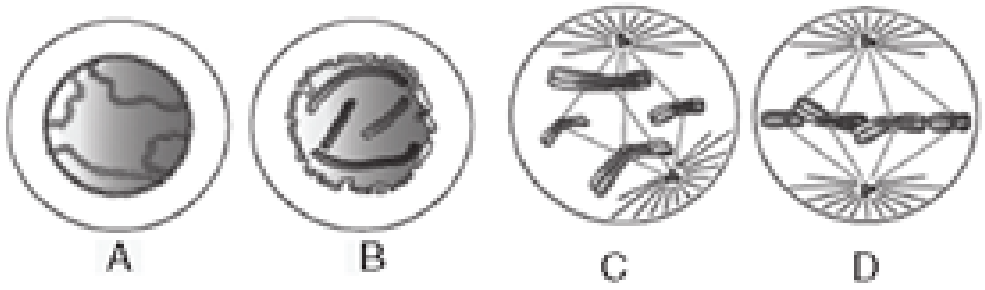
20. Prophase is characterized by
(a) Initiation of condensation of chromosomal material.
(b) Centrioles moving towards opposite pole.
(c) Initiation of the assembly of mitotic spindle.
(d) All of these

21. Cells at the end of prophase, when viewed under the microscope, do not show
(a) Golgi body and ER (b) Nucleolus
(c) Nuclear envelop (d) All of these

22. Which of the following initiates the start of metaphase?
(a) Completion of bivalent chromosome formation
(b) Assemblage of microtubules of nucleoplasm
(c) Complete disintegration of nuclear envelope
(d) Duplication of chromosome

23. Metaphase is not characterized by
(a) Complete condensation of chromosome
(b) Alignment of chromosome on metaphase plate.
(c) Attachment of spindle fibre to kinetochore
(d) Splitting of chromosome

24. Identify A, B, C and D in the below mitosis diagram.



(a) A–Transition to Metaphase, B–Metaphase, C–Early Prophase, D–Late Prophase
(b) A–Late Prophase, B–Transition to Metaphase, C–Metaphase, D–Early Prophase
(c) A–Early Prophase, B–Late Prophase, C–Transition to Metaphase, D–Metaphase
(d) A–Metaphase, B–Early Prophase, C–Late Prophase, D–Transition to Metaphase

25. Anaphase is characterized by
(a) Splitting of centromere (b) Separation of chromatids
(c) Movement of chromatid to opposite pole (d) All of these

26. Events of telophase are
(a) Chromosomes cluster at opposite spindle poles and their identity is lost as discrete elements.
(b) Nuclear envelope assembles around the chromosome cluster.
(c) Nucleolus, Golgi complex and ER reforms
(d) All the above

27. Furrow formation does not occur in plant cell during cytokinesis because of
(a) Extensible cell wall (b) Inextensible cell wall
(c) Extensible plasma membrane (d) Inextensible plasma membrane

28. Select the total number of correct statement:
I. Cell-plate formation occurs in plant cell during cytokinesis.
II. During cytokinesis mitochondria and plastid gets distributed between two daughter cells in mitosis.
III. Liquid endosperm in coconut is syncytium.
IV. Furrow formation occurs in Animal cell during cytokinesis
(a) 1 (b) 2 (c) 3 (d) 4

29. Cell which divides by mitosis is
(a) Upper layer of epidermis (b) Cells lining gut
(c) Stem cells (d) All of these

30. Plant shows continuous growth throughout their life because of
(a) Mitosis (b) Amitosis (c) Meiosis (d) All of these

31. Mitosis helps
(a) Growth (b) Repair (c) Both (a) and (b) (d) Spore formation

32. Which of the following holds true about meiosis?
I. It ensures the production of haploid phase in the life cycle of sexually reproducing organism where fertilization restores the diploid phase.
II. It involves the two sequential cycle of nuclear and cell division called meiosis I and II but only a single cycle of DNA replication.
III. It involves the pairing of homologous chromosomes and recombination between them.
IV. Four haploid cells are formed at the end of meiosis.
(a) I, II, IV only (b) IV only (c) I and III only (d) All of these

33. Prophase I is divided into how many phases based on the chromosomal behaviour?
(a) 1 (b) 2 (c) 4 (d) 5

34. Synaptonemal complex formes in
(a) Zygotene (b) Pachytene (c) Diplotene (d) Diakinesis

35. Select the correct statement from the following:
(a) In leptotene stage the chromosomes become gradually visible under light microscope.
(b) During zygotene the heterologous chromosome shows pairing.
(c) Chiasmata is a J-shape structure formed in diplotene.
(d) Pachytene is characterized by the formation of synaptonemal complex.

36. Recombination is seen in
(a) Diplotene (b) Zygotene or synaptotene
(c) Pachytene (d) Diakinesis

37. Synaptonemal complex is visible in
(a) Compound microscope (b) Simple microscope
(c) Hand lens (d) Electron microscope

38. Crossing over is an exchange of genetic material between
(a) Homologous chromosome (b) Heterologus chromosome
(c) Non-homologous chromosome (d) All of these

39. The beginning of diplotene is characterized by
(a) Recombination (b) Synapsis
(c) Dissolution of synaptonemal complex (d) Formation of tetrad

40. Diakinesis is characterized by
(a) Condensation of chromosome (b) Assemblage of spindle
(c) Disappearance of nucleous and nuclear membrane
(d) All the above

41. Homologous chromosomes gets separate during
(a) Metaphase-I (b) Anaphase-I (c) Anaphase-II (d) Telophase-I

42. The stage between Meiosis I & II is _____.
(a) M-phase (b) Interphase (c) S-phase (d) Interkinesis

43. Which of the following statement is incorrect?
(a) Prophase II is simpler than prophase I.
(b) Prophase I is longer and complex than prophase of mitosis.
(c) Nuclear membrane reappears in telophase I.
(d) Anaphase II is not characterized by the splitting of centromere.

44. Meiosis is significant because it
(a) Increases genetic variability
(b) Helps in the conservation of specific chromosome number
(c) Is important for evolution (d) All of these

45. Most of the cell organelle duplicates during
(a) G1 phase (b) S-phase (c) G2 phase (d) M-phase

46. Reduction of the division is
(a) Meiosis (b) Mitosis (c) Both (a) and (b) (d) None of these

47. The main difference between dividing an animal and plant cell lies in
(a) Cell plate formation (b) Chromosome movement
(c) Coiling of chromosome (d) Chromosome division

48. 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.

49. Mitosis occurs in
(a) Haploid cells only (b) Diploid cells only
(c) Triploid cells only (d) Both (a) and (b)

50. Interphase is also called resting stage because
(a) Cell has stopped differentiation (b) Cell is metabolically inactive
(c) No visible changes occur in the nucleus
(d) Cell does not grow

51. Diploid somatic cells is divided by
(a) Meiosis (b) Mitosis only
(c) Both meiosis and mitosis. (d) None of these

52. Cell division takes place when the cell
(a) Is haploid (b) Becomes diploid
(c) Attains optimum growth (d) Any time

53. Before cell division, the entire DNA content of the cell gets doubled during interphase. This doubling takes place
(a) Throughout the interphase (b) At the beginning of the interphase
(c) At the end of the interphase
(d) Somewhere during the middle of the interphase

54. Cell cycle is divisible into
(a) karyokinesis and cytokinesis (b) Interphase and prophase
(c) Interphase and mitotic phase (d) M-phase and S-phase

55. The correct sequence of stages in cell cycle is
(a) G_1, S, G_2, M (b) G_1, G_2, S, M (c) M, S, G_1, G_2 (d) G_2, G_1, M, S

56. Condensation of chromosome with visible centromere occurs during
(a) G_1 phase (b) G_2 phase (c) S-phase (d) M-phase

57. Synthesis of RNA and proteins takes place in
(a) M-phase (b) S-phase (c) G1 phase (d) G1 and G2 phases

58. Mitosis is
(a) Karyokinesis (b) Cytokinesis
(c) Reduction in chromosome number (d) Both (a) and (b)

59. As compared to meiosis, in mitosis
(a) Homologous chromosomes form pairs
(b) Daughters have half chromosome number
(c) Telophase stage is absent (d) Prophase is shorter

60. The cellular structure which always disappears during mitosis or meiosis is
(a) Plastids (b) Plasma membrane
(c) Nucleolus and nuclear envelope. (d) None of these

61. Chromosomes are arranged at equatorial plate of division spindle in
(a) Prophase (b) Metaphase (c) Anaphase (d) Telophase

62. Chromosomes can be counted best at the stage of
(a) Prophase (b) Anaphase (c) Metaphase (d) Telophase

63. The best stage to observe the shape, size and number of chromosomes is
(a) Interphase (b) Metaphase (c) Prophase (d) Telophase

64. Spindle fibres are made up of
(a) Proteins (b) Lipids (c) Cellulose (d) Pectin

65. 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 cycles of DNA replication occur.

66. The separation of daughter chromosomes occurs in
(a) The beginning of anaphase (b) Metaphase
(c) Late prophase (d) Early prophase

67. At which stage of mitosis, the chromatids separate and start moving towards poles?
(a) Prophase (b) Metaphase (c) Anaphase (d) Telophase

68. Mitotic anaphase differs from metaphase in possessing
(a) Same number of chromosomes and half number of chromatids.
(b) Half the number of chromosomes and same number of chromatids.
(c) Half the number of chromosomes and half number of chromatids.
(d) Same number of chromosomes and same number of chromatids.

69. Animal cells undergo cytokinesis by
(a) Furrowing (b) Cell plate (c) Both (a) and (b)
(d) Furrowing and followed by the deposition of special materials

70. Significance of mitosis lies in
(a) Producing cells genetically similar to parent cell
(b) Occurrence in energy tissue of body
(c) Increasing cellular mass (d) Swift division

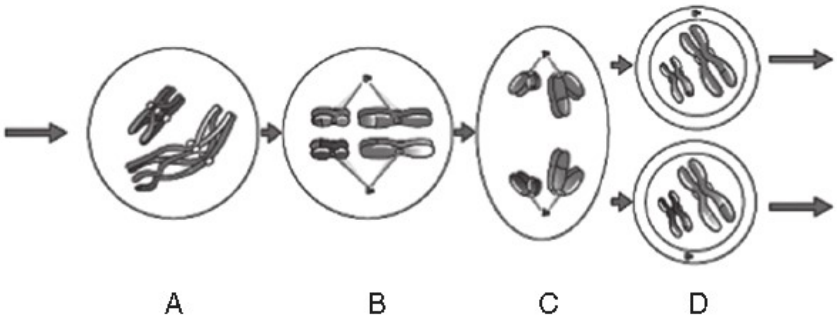
71. Mitosis differs from meiosis in
(a) Forming four haploid cells.
(b) Pairing of homologous chromosomes and their subsequent separation.
(c) Doubling of each chromosome and each pair showing four chromatids.
(d) Duplication of chromosomes and subsequent separation of the duplicates.

72. The number of chromosomes present in pollen grains is six. What shall be their number in leaf cells?
(a) 12 (b) 24 (c) 6 (d) 3

73. Meiosis occurs in
(a) Liver (b) Kidney (c) Reproductive cells (d) Brain

74. Meiosis is
(a) Disjunctional division (b) Equational division
(c) Multiplicational division (d) Reductional division

75. The following diagram shows modification of the meiosis I. Identify A, B, C, D.



(a) A–Telophase I, B–Anaphase I, C–Metaphase I, D–Prophase I
(b) A–Prophase I, B–Metaphase I, C–Anaphase I, D–Telophase I
(c) A–Metaphase I, B–Telophase I, C–Prophase I, D–Anaphase I
(d) A–Anaphase I, B–Prophase I, C–Telophase I, D–Metaphase I

76. Meiosis involves
(a) Two nuclear divisions and two chromosome divisions
(b) Two nuclear divisions and one chromosome division
(c) One nuclear division and one chromosome division
(d) One nuclear division and two chromosome divisions

77. Meiosis occurs in
(a) Haploid cells (b) Diploid cells
(c) Both haploid and diploid cells (d) Triploid cells

78. Which of the following statements is correct for meiosis?
(a) First division is equational and the second is reductional
(b) First division is reductional and the second is equational
(c) Both divisions are equational
(d) Both divisions are reductional

79. Meiosis can be studied in angiosperm in
(a) Root apical meristem (b) Shoot apical meristem
(c) Dividing cells of vascular cambium (d) Dividing pollen mother cells in anther

80. How many meiotic divisions are necessary to produce 600 pollen grains?
(a) 50 (b) 100 (c) 150 (d) 300

81. Before undergoing meiosis, the amount of DNA of a cell
(a) Halves (b) Doubles
(c) Remains the same (d) More than 1 option is correct

82. Which of the following represents the correct order in Prophase I?
(a) Zygotene, diplotene, pachytene, leptotene, diakinesis
(b) Diakinesis, diplotene, leptotene, pachytene, zygotene
(c) Leptotene, zygotene, pachytene, diplotene, diakinesis
(d) Pachytene, leptotene, zygotene, diplotene, diakinesis

83. In which stage of meiosis, the chromosome is thin, long and thread-like?
(a) Leptotene (b) Zygotene (c) Pachytene (d) Diakinesis

84. Synaptonemal complex has a role in
(a) Chromosome pairing (b) Chromosome movement
(c) Chromosome segregation (d) Chromosome organization

85. The synaptonemal complex is formed during
(a) Cytokinesis (b) Amitosis (c) Mitosis (d) Meiosis

86. 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

87. Tetrad is made of
(a) Four non-homologous chromatids
(b) Four non-homologous chromosomes
(c) Four homologous chromosomes with four chromatids
(d) Two homologous chromosomes and each with two chromatids

88. The exchange of paternal and maternal chromosome material during cell division is
(a) Dyad formation (b) Crossing over
(c) Synapsis (d) Bivalent formation

89. Transfer of genes from one chromosome to another and vice versa during synapsis is called
(a) Crossing over (b) Exchange (c) Chiasmata (d) Translocation

90. Repulsion of homologous chromosomes takes place in
(a) Diplotene (b) Zygotene (c) Diakinesis (d) Leptotene

91. When are chromatids clearly visible in meiosis?
(a) Zygotene (b) Pachytene (c) Diplotene (d) Diakinesis

92. Chiasma formation occurs in
(a) Leptotene (b) Zygotene (c) Pachytene (d) Diplotene

93. Cross-like configuration when non-sister chromatids of a bivalent comes in contact during the first meiotic division are
(a) Chiasmata (b) Bivalents (c) Chromomeres (d) Centromeres

94. Terminalization occurs during
(a) Mitosis (b) Diakinesis (c) Cytokinesis (d) Meiosis II

95. Number of chromosome groups at equatorial plate of metaphase I of a plant body having $2n = 50$ chromosomes shall be
(a) 100 (b) 75 (c) 50 (d) 25

96. Cells which are not dividing are likely to be at
(a) G_1 (b) G_2 (c) G_0 (d) S phase

97. Meiosis II performs
(a) Synthesis of DNA and centromere
(b) Separation of sex chromosomes
(c) Separation of chromatids
(d) Separation of homologous chromosomes

98. Significance of meiosis lies in the
(a) Reduction of chromosome number to one half.
(b) Maintaining the consistency of chromosome number during sexual reproduction.
(c) Production of genetic variability. (d) All of these

99. 200 egg cells are produced by (in meiosis)
(a) 50 divisions (b) 100 divisions (c) 200 divisions (d) 400 divisions

100. At which stage of meiosis does the genetic constitution of gametes is finally decided?
(a) Metaphase I (b) Anaphase II
(c) Metaphase II (d) Anaphase I

101. In plant cells, cytokinesis occurs by
(a) Furrowing (b) Invagination
(c) Anticlinal division (d) Cell plate formation

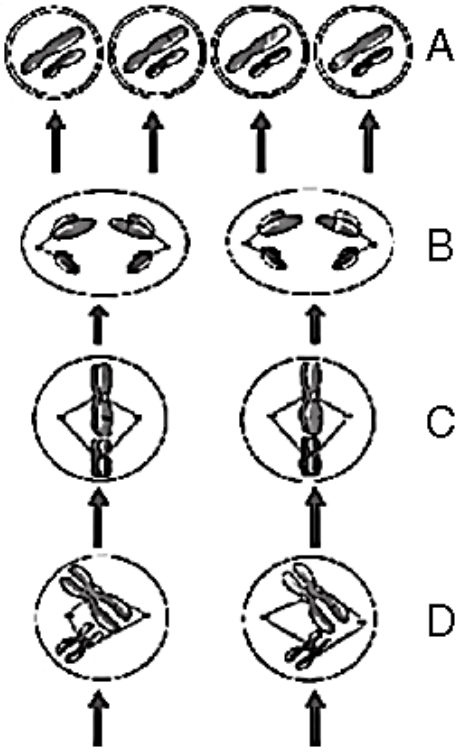
102. The phase of cell cycle during which 'DNA polymerase' is functionally active is
(a) S (b) G2 (c) G1 (d) M

103. The number of mitotic divisions required to produce 128 cells from a single cell is
(a) 7 (b) 14 (c) 8 (d) 36

104. Which statement is correct for meiosis?
(a) Meiosis I is reduction division
(b) Meiosis II is reduction division
(c) Meiosis I and II are both reduction divisions
(d) Meiosis I and II both are not reduction divisions

105. Which of the following is the longest phase of meiosis?
(a) Prophase I (b) Anaphase I (c) Prophase II (d) Metaphase II

106. The following diagram shows modification of the meiosis II for storage. Identify A, B, C, D from the below figure.



(a) A–Prophase II, B–Metaphase II, C–Anaphase II, D–Telophase II
(b) A–Anaphase II, B–Prophase II, C–Telophase II, D–Metaphase II
(c) A–Metaphase II, B–Telophase II, C–Prophase II, D–Anaphase II
(d) A–Telophase II, B–Anaphase II, C–Metaphase II, D–Prophase II

107. A bivalent of meiosis-I consists of
(a) Two chromatids and one centromere
(b) Two chromatids and two centromeres
(c) Four chromatids and two centromeres
(d) Four chromatids and four centromeres.

108. At which stage of mitosis the chromatids separate and pass to different poles?
(a) Prophase (b) Metaphase (c) Anaphase (d) Telophase

109. During meiosis, the crossover occurs between
(a) Sister chromatids of homologous chromosomes
(b) Non-sister chromatids of homologous chromosomes
(c) Sister chromatids of non-homologous chromosomes
(d) Non-homologous chromatids of homologous chromosomes

110. Which of the following is not true for anaphase?
(a) Golgi body and ER are reformed
(b) Spindle poles move further apart
(c) Chromosomes move to opposite poles
(d) Centromeres split and chromatids separate

111. The longest phase of meiosis I is
(a) Metaphase I (b) Prophase I (c) Anaphase I (d) Telophase I

112. Mitosis is characterized by
(a) Reduction division (b) Equal division
(c) Both reduction and equal division
(d) Pairing of homologous chromosomes

113. Which is the correct statements from the following:
I. Synapsis of homologous chromosomes takes place during prophase I of meiosis.

II. Division of centromeres takes place during anaphase I of meiosis.
III. Spindle fibres disappear completely in telophase of mitosis.
IV. Nucleoli reappear at telophase I of meiosis.

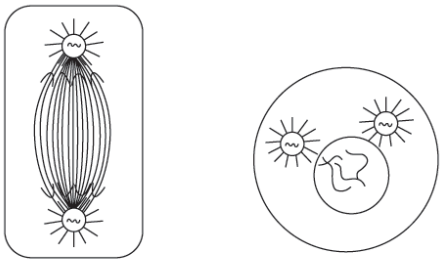
(a) I only (b) III only (c) I and II only (d) I, III and IV only

PREVIOUS YEAR QUESTIONS

114. During anaphase–I of meiosis
(a) Homologous chromosomes separate
(b) Non-homologous autosomes separate
(c) Sister chromatids separate
(d) Non-sister chromatids separate

115. During mitosis the ER and nucleolus begins to disappear at [AIPMT PRE 2010]
(a) Late prophase (b) Early metaphase
(c) Late metaphase (d) Early prophase

116. Which stages of cell division do the following figures A and B represent respectively?



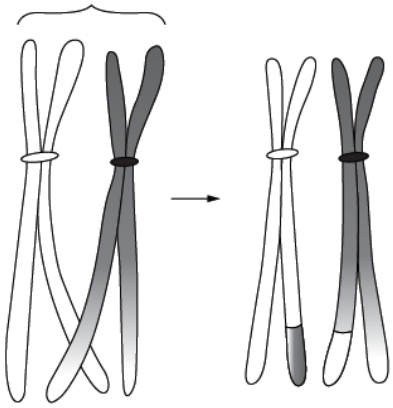
(a) Metaphase – Telophase (b) Telophase – Metaphase
(c) Late anaphase – Prophase (d) Prophase - Anaphase

117. At metaphase, the chromosomes are attached to the spindle fibres by their [AIPMT MAINS 2011]
(a) Satellites (b) Secondary constrictions
(c) Kinetochores (d) Centromeres

118. Identify the meiotic stage in which the homologous chromosomes separate while the sister chromatids remain associated at their centromeres: [AIPMT MAINS 2012]
(a) Metaphase II (b) Anaphase I (c) Anaphase II (d) Metaphase I

119. During gamete formation the enzyme recombinase participates during [AIPMT PRE 2012]
(a) Metaphase I (b) Anaphase II (c) Prophase I (d) Prophase II

120. Given below is the representation of a certain event at a particular stage of a type of cell division. What is this stage?

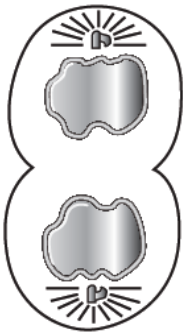


(a) Prophase I during meiosis (b) Prophase II during meiosis
(c) Prophase of mitosis (d) Both prophase and metaphase of mitosis

121. The complex formed by a pair of synapsed homologous chromosomes is called [AIPMT 2013]

(a) Equatorial plate (b) Kinetochore (c) Bivalent (d) Axoneme

122. A stage of cell division is shown in the below figure. Select the answer which gives the correct identification of this stage with its characteristics.



(a) Telophase Nuclear envelope reforms, Golgi complex reforms.

(b) Late anaphase Chromosomes move away from the equatorial plate, Golgi complex is not present.

(c) Cytokinesis Cell plate formed by mitochondria is distributed between two daughter cells.

(d) Telophase Endoplasmic reticulum and nucleolus is not reformed yet.

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

(a) G0 and G1 (b) G1 and S (c) Only G2 (d) G2 and M

124. In 'S' phase of the cell cycle [AIPMT 2014]

(a) The amount of DNA doubles in each cell.

(b) The amount of DNA remains same in each cell.

(c) The chromosome number is increased.

(d) The amount of DNA is reduced to half in each cell.

125. The enzyme recombinase is required at which state of meiosis [AIPMT 2014]

(a) Pachytene (b) Zygotene (c) Diplotene (d) Diakinesis

126. Meiosis occurs in organisms during

(a) Sexual reproduction (b) Vegetative reproduction

(c) Both sexual and vegetative reproduction

(d) Pairing of homologous chromosomes

127. A somatic cell that has just completed the S phase of its cell cycle when compared to the gamete of the same species has [AIPMT 2015]

(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 and four times the amount of DNA.

(d) Four times the number of chromosomes and twice the amount of DNA.

128. Arrange the following events of meiosis in correct sequence: [RE-AIPMT 2015]

(A) Crossing over (B) Synapsis

(C) Terminalization 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)

129. Spindle fibres attach on to: [NEET - I, 2016]

(a) Telomere of the chromosome (b) Kinetochore of the chromosome

(c) Centromere of the chromosome (d) Kinetosome of the chromosome

130. In meiosis crossing over is initiated at: [NEET - I, 2016]

(a) Pachytene (b) Leptotene (c) Zygotene (d) Diplotene

131. Which of the following is not characteristic feature during mitosis in somatic cells? [NEET - I, 2016]
(a) Spindle fibres (b) Disappearance of nucleolus
(c) Chromosome movement (d) Synapsis

132. During cell growth, DNA synthesis takes place in [NEET - II, 2016]
(a) G1 phase (b) G2 phase (c) M phase (d) S phase

133. Match the stage of meiosis in Column – I to their characteristic features in Column – II and select the correct option using the codes given below: [NEET - II, 2016]

Column – I	**Column – II**
A. Pachytene	1. Pairing of homologous chromosomes
B. Metaphase I	2. Terminalisation of chiasmata
C. Diakinesis	3. Crossing over takes place
D. Zygotene	4. Chromosomes align at equatorial plate

(a) A : 1, B : 4, C : 2, D : 3 (b) A : 2, B : 4, C : 3, D : 1
(c) A : 4, B : 3, C : 2, D : 1 (d) A : 3, B : 4, C : 2, D : 1

134. When cell has stalled DNA replication fork which checkpoint should be predominantly activated? [NEET - II, 2016]
(a) G2/M (b) M (c) Both G2/M and M (d) G1/S

NCERT EXEMPLAR QUESTIONS

135. Meiosis results in
(a) Production of gametes (b) Reduction in the number of chromosomes
(c) Introduction of variation (d) All the above

ANSWER KEY

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
a	c	d	a	a	b	a	a	d	b	c	d	d	c	b
16	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
c	b	d	b	d	d	c	d	c	d	d	b	d	d	a
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**
c	d	d	a	a	c	d	a	c	d	b	d	d	d	a
46	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
a	a	b	d	c	b	c	d	c	a	d	d	d	d	c
61	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**	**71**	**72**	**73**	**74**	**75**
b	c	b	a	d	a	c	a	a	a	d	a	c	d	b
76	**77**	**78**	**79**	**80**	**81**	**82**	**83**	**84**	**85**	**86**	**87**	**88**	**89**	**90**
b	b	b	d	c	b	c	a	a	d	d	d	b	a	a
91	**92**	**93**	**94**	**95**	**96**	**97**	**98**	**99**	**100**	**101**	**102**	**103**	**104**	**105**
d	d	a	b	d	a	c	d	c	d	d	a	a	a	a
106	**107**	**108**	**109**	**110**	**111**	**112**	**113**	**114**	**115**	**116**	**117**	**118**	**119**	**120**
d	c	c	b	a	b	b	d	a	a	c	c	b	c	a
121	**122**	**123**	**124**	**125**	**126**	**127**	**128**	**129**	**130**	**131**	**132**	**133**	**134**	**135**
c	a	d	a	a	a	c	a	b	a	d	d	d	a	d