



BIOLOGY

BOOKS - JBD PUBLICATION

CELL CYCLE AND CELL DIVISION

Exercise

1. Chromosomes appear as long thin threads during:

A. leptotene

B. zygotene

C. pachytene

D. prophase

Answer:



Watch Video Solution

2. How many mitotic divisions will from 128 cells from one cell?

A. 7

B. 16

C. 128

D. 5

Answer:



Watch Video Solution

3. A cell arrested after G_1 phase will be in which phase?

A. G_2

B. M

C. S

D. G_0

Answer:



Watch Video Solution

4. Actual morphology of chromosomes can be observed in:

A. anaphase of mitosis

B. metaphase I of meiosis

C. metaphase of mitosis

D. anaphase I of metosis

Answer:



Watch Video Solution

5. In algae, meiosis occurs during

A. zygote formation

B. spore formation

C. spore germination

D. zygote formation

Answer:



Watch Video Solution

6. The cell divisions in cancerous cells lead to a stage of movement of cells to different body parts is known as:

A. metagenesis

B. metastasis

C. metamorphosis

D. metaphasic

Answer:



Watch Video Solution

7. A mitotic stage in which nuclear membrane and nucleolus disappear and distinct chromosomes are visible is:

A. metaphase

B. prophase

C. anaphase

D. telophase

Answer:



Watch Video Solution

8. Two sister chromatids of a chromosome are attached together with:

A. centromere

B. spindle fibre

C. chromocentre

D. chromomere

Answer:



Watch Video Solution

9. The longest period of HeLa cells during mitosis is:
mitosis is:

A. M phase

B. G_1 phase

C. S phase

D. G_2 phase

Answer:



Watch Video Solution

10. Chromosome number is reduced to half during:

A. mitosis

B. meiosis

C. amitosis

D. endomitosis

Answer:



Watch Video Solution

11. How many meiotic divisions are required to produce 101 female gametophytes in an angiosperm?

A. 26

B. 127

C. 101

D. None of these

Answer:



Watch Video Solution

12. Pairing of chromosomes during meiosis I (prophase) takes place in which stage?

A. Leptotene

B. Zygotene

C. Diakinesis

D. Pachytene

Answer:



Watch Video Solution

13. Replication of chromosomes in meiosis occurs in:

A. interphase

B. telophase

C. prophase II

D. prophase I

Answer:



Watch Video Solution

14. Mitosis occurs in:

A. haploid individuals

B. diploid individual

C. in both (A) and (B)

D. in bacteria only

Answer:



Watch Video Solution

15. Which of the following protein forms spindle fibres?

A. Tubulin

B. Myoglobin

C. MYosin

D. Actomyosin.

Answer:



Watch Video Solution

16. Which process takes place during meiosis?

A. Recombination

B. Linkage

C. Doubling of chromosomes

D. All of three

Answer:



Watch Video Solution

17. Time period between meiosis I and meiosis

II is called:

A. anaphase I

B. interkinesis

C. cytokinesis

D. interphase

Answer:



Watch Video Solution

18. In pachytene, the chromosomes appear:

A. double stranded

B. single stranded

C. three stranded

D. four stranded.

Answer:



Watch Video Solution

19. Which one will undergo meiosis and mitosis?

A. Spermatids

B. Gonads

C. Sertoli cells

D. Intestinal cells

Answer:



Watch Video Solution

20. In fern meiosis occurs before the formation of:

A. spores

B. gametes

C. prothallus

D. all the three.

Answer:



Watch Video Solution

21. Zygotic meiosis is found in:

A. Puccinia

B. Chlamydomonas

C. Funaria

D. Dryopteris

Answer:



Watch Video Solution

22. Colchicine interferes in cell division through:

- A. splitting of chromosomes
- B. breaking the spindle
- C. non-pairing of chromosomes
- D. splitting of centromeres

Answer:



Watch Video Solution

23. The term meiosis was coined by:

- A. Strasburger
- B. Flemming
- C. Farmer and Moore
- D. Liebig.

Answer:



Watch Video Solution

24. Centromeres divide in which phase of cell division?

A. Prophase

B. Metaphase

C. Telophase

D. Anaphase

Answer:



25. During cell division, spindle fibres are attached to which part of chromosome?

- A. Chromomere
- B. Chromonemata
- C. Chromatid
- D. Kinetochore

Answer:



26. Which one is a correct sequences of substages of prophase I?

A. Leptotene, pachytene, zygotene, diplotene and diakinesis

B. Leptotene, zygotene, pachytene, diplotene and diakinesis.

C. Leptotene, diakinesis, pachytene, zygotene and diplotene

D. Diakinesis, pachytene, diplotene,
leptotene and zygotene

Answer:



Watch Video Solution

27. If chromosome number in a stock is $2n=48$ and scion-microscope mother cell has $2n=24$, then the root cell and microspore will have:

A. 24, 96 chromosomes

B. 24,12 chromosomes

C. 48, 12 chromosomes

D. 12, 48 chromosomes

Answer:



Watch Video Solution

28. The pairing of homologous chromosomes during zygotene is called as:

A. synapse

B. terminalisation

C. synapsis

D. crossing over

Answer:



Watch Video Solution

29. The number of chromosomes in a mature gamete gets halved during:

A. formation of first polar body

B. formation of second polar body

C. meiosis II

D. division of secondary oocyte and
spermatocyte

Answer:



Watch Video Solution

30. If you are provided with root tips of onion in your class and are asked to count the

chromosomes, which of the following stages
can you most conveniently look into?

A. Telophase

B. Anaphase

C. prophase II

D. Metaphase

Answer:



Watch Video Solution

31. Cancer cells are more easily damaged by radiation than normal cells because they are:

A. undergoing rapid division

B. different in structure

C. non-dividing

D. starved of mutation

Answer:



Watch Video Solution

32. In somatic cell cycle:

A. DNA replication takes place in S phase

B. a short interphase is followed by a long mitotic phase

C. G_2 phase follows mitotic phase

D. in G_1 phase DNA content is double the amount of DNA present in the original cell.

Answer:



Watch Video Solution

33. Chromosomes appear as long thin threads during:

A. leptotene

B. zygotene

C. pachytene

D. prophase

Answer:



Watch Video Solution

34. How many mitotic divisions will from 128 cells from one cell?

A. 7

B. 16

C. 128

D. 5

Answer:



Watch Video Solution

35. A cell arrested after G_1 phase will be in which phase?

A. G_2

B. M

C. S

D. G_0

Answer:



Watch Video Solution

36. Actual morphology of chromosomes can be observed in:

A. anaphase of mitosis

B. metaphase I of meiosis

C. metaphase of mitosis

D. anaphase I of metosis

Answer:



Watch Video Solution

37. In algae, meiosis occurs during

- A. zygote formation
- B. spore formation
- C. spore germination
- D. zygote germination

Answer:



Watch Video Solution

38. The cell divisions in cancerous cells lead to a stage of movement of cells to different body parts is known as:

- A. metagenesis
- B. metastasis
- C. metamorphosis
- D. metaphasic

Answer:



Watch Video Solution

39. A mitotic stage in which nuclear membrane and nucleolus disappear and distinct chromosomes are visible is:

A. metaphase

B. prophase

C. anaphase

D. telophase

Answer:



Watch Video Solution

40. Two sister chromatids of a chromosome are attached together with:

- A. centromere
- B. spindle fibre
- C. chromocentre
- D. chromomere

Answer:



Watch Video Solution

41. The longest period of HeLa cells during mitosis is:

A. M phase

B. G_1 phase

C. S phase

D. G_2 phase

Answer:



Watch Video Solution

42. Chromosome number is reduced to half during:

A. mitosis

B. meiosis

C. amitosis

D. endomitosis

Answer:



Watch Video Solution

43. How many meiotic divisions are required to produce 101 female gametophytes in an angiosperm?

A. 26

B. 127

C. 101

D. None of these

Answer:



Watch Video Solution

44. Pairing of chromosomes during meiosis I (prophase) takes place in which stage?

A. Leptotene

B. Zygotene

C. Diakinesis

D. Pachytene

Answer:



Watch Video Solution

45. Replication of chromosomes in meiosis occurs in:

A. interphase

B. telphase

C. prophase II

D. prophase I

Answer:



Watch Video Solution

46. Mitosis occurs in:

A. haploid individuals

B. diploid individuals

C. in both (A) and (B)

D. in bacteria only

Answer:



Watch Video Solution

47. Which one of the following is not a protein ?

A. Actin

B. Myoglobin

C. MYosin

D. Actomyosin.

Answer:



Watch Video Solution

48. Which process takes place during meiosis?

A. Recombination

B. Linkage

C. Doubling of chromosomes

D. All of three

Answer:



Watch Video Solution

49. Time period between meiosis I and meiosis II is called:

- A. anaphase I
- B. interkinesis
- C. cytokinesis
- D. interphase

Answer:



Watch Video Solution

50. In pachytene, the chromosomes appear:

A. double stranded

B. single stranded

C. three stranded

D. four stranded.

Answer:



Watch Video Solution

51. Which one will undergo meiosis and mitosis?

A. Spermatids

B. Gonads

C. Sertoli cells

D. Intestinal cells

Answer:



Watch Video Solution

52. In fern meiosis occurs before the formation of:

- A. spores
- B. gametes
- C. prothallus
- D. all the three.

Answer:



Watch Video Solution

53. Zygotic meiosis is found in:

A. Puccinia

B. Chlamydomonas

C. Funaria

D. Dryopteris

Answer:



Watch Video Solution

54. Colchicine interferes in cell division through:

- A. splitting of chromosomes
- B. breaking the spindle
- C. non-pairing of chromosomes
- D. splitting of centromeres

Answer:



Watch Video Solution

55. The term meiosis was coined by:

A. Strasberger

B. Flemming

C. Farmer and Moore

D. Liebig.

Answer:



Watch Video Solution

56. Centromeres divide in which phase of cell division?

A. Prophase

B. Metaphase

C. Telophase

D. Anaphase

Answer:



Watch Video Solution

57. During cell division, spindle fibres are attached to which part of chromosome?

- A. Chromomere
- B. Chromonemata
- C. Chromatid
- D. Kinetochore

Answer:



Watch Video Solution

58. Which one is a correct sequences of substages of prophase I?

A. Leptotene, pachytene, zygotene,

dipotene and diakinesis

B. Leptotene, zygotene, pachytenc,

diplotene and diakinesis.

C. Lepotene, diakinesis, pachytene,

zygotene and diplotene

D. Diakinesis, pachytene, diplotene,
leptotene and zygotene

Answer:



Watch Video Solution

59. If chromosome number in a stock is $2n=48$ and scion-microscope mother cell has $2n=24$, then the root cell and microspore will have:

A. 24, 96 chromosomes

B. 24,12 chromosomes

C. 48, 12 chromosomes

D. 12, 48 chromosomes

Answer:



Watch Video Solution

60. The pairing of homologous chromosomes during zygotene is called as:

A. synapse

B. terminalisation

C. synapsis

D. crossing over

Answer:



Watch Video Solution

61. The number of chromosomes in a mature gamete gets halved during:

A. formation of first polar body

B. formation of second polar body

C. meiosis II

D. division of secondary oocyte and
spermatocyte

Answer:



Watch Video Solution

62. If you are provided with root tips of onion in your class and are asked to count the

chromosomes, which of the following stages
can you most conveniently look into?

A. Telophase

B. Anaphase

C. prophase II

D. Metaphase

Answer:



Watch Video Solution

63. Cancer cells are more easily damaged by radiation than normal cells because they are:

A. undergoing rapid division

B. different in structure

C. non-dividing

D. starved of mutation

Answer:



Watch Video Solution

64. In somatic cell cycle:

- A. DNA replication takes place in S phase
- B. a short interphase is followed by a long mitotic phase
- C. G_2 phase follows mitotic phase
- D. in G_1 phase DNA content is double the amount of DNA present in the original cell.

Answer:



Watch Video Solution

Example

1. Fill in the blanks:

Pairs ofchromosomes are called bivalents.



[Watch Video Solution](#)

2. Fill in the blanks:

Synapsis takes place during..... .



[Watch Video Solution](#)

3. Fill in the blanks:

.....chromosomes are exactly alike.



[Watch Video Solution](#)

4. Fill in the blanks:

First meiotic division is calledphase.



[Watch Video Solution](#)

5. Fill in the blanks:

Division ofis known as karyokinesis.



Watch Video Solution

6. Fill in the blanks:

Division ofis known as cytokinesis.



Watch Video Solution

7. Fill in the blanks:

Chromosomes are thickest and shortest at..... .



[Watch Video Solution](#)

8. Fill in the blanks:

A prophase chromosome has.....chromatids.



[Watch Video Solution](#)

9. Fill in the blanks:

Protein.....is required for spindle formation.



[Watch Video Solution](#)

10. Fill in the blanks:

G_1 chromosomes have.....chromatid.



[Watch Video Solution](#)

11. Fill in the blanks:

Three phases of interphase are....., S
and



Watch Video Solution

12. Fill in the blanks:

.....remain in interphase throughout the
life.



Watch Video Solution

13. Fill in the blanks:

Majority of lifespan of a cell is spent in

..... .



Watch Video Solution

14. Fill in the blanks:

In higher eukaryotes theegg begins the life.



Watch Video Solution

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

interkinesis



Watch Video Solution

16. What are characteristic features of diakinesis?



Watch Video Solution

17. Define zygotic meiosis.



Watch Video Solution

18. what is gametic meiosis?



Watch Video Solution

19. Name five substages of prophase I of meiosis.



Watch Video Solution

20. Name the following scientists who:

Coined the term meiosis.



Watch Video Solution

21. What is cytokinesis?



Watch Video Solution

22. What are sister chromatids?



Watch Video Solution

23. Which are four stages of mitotic phase?



Watch Video Solution

24. Who first observed the process of mitosis in animal cell?



Watch Video Solution

25. Name the phases of cell cycle.



Watch Video Solution

26. What a karyokinesis?



Watch Video Solution

27. What is main function of S phase?



Watch Video Solution

28. What is a tetrad?



Watch Video Solution

29. What are chiasmata?



Watch Video Solution

30. Cite four stages of M Phase of mitotic cell division.



Watch Video Solution

31. What type of spindle formation is in plants?



Watch Video Solution

32. What is endomitosis?



Watch Video Solution

33. Name the phase of mitosis of longest and shortest duration.



Watch Video Solution

34. Define

synaptonemal complex.



Watch Video Solution

35. What is intranuclear mitosis?



[Watch Video Solution](#)

36. Name the stage of cell cycle of which synapsis takes place.



[Watch Video Solution](#)

37. What are the essential stages occurring during meiosis?



[Watch Video Solution](#)

38. What are the characteristics of important events which occur during prophase of mitosis?



Watch Video Solution

39. Differentiate mitosis in plant cell and animal cell.



Watch Video Solution

40. Differentiate cytokinesis in plants and animals?



Watch Video Solution

41. What are the important activities in interphase?



Watch Video Solution

42. What are the basic phases of a cell cycle?



[Watch Video Solution](#)

43. Define cell cycle.



[Watch Video Solution](#)

44. What is G_o (quiescent phase) of cell cycle?



[Watch Video Solution](#)

45. What is karyotyping? Who studied human karyotype for the first time? Define idiogram.



Watch Video Solution

46. What is the significance of meiosis?



Watch Video Solution

47. Define crossing over. What is the significance of crossing over ?



[Watch Video Solution](#)

48. Where does meiosis takes place?



[Watch Video Solution](#)

49. Define endomitosis.



[Watch Video Solution](#)

50. Define zygotic meiosis.



Watch Video Solution

51. What are sister chromatids?



Watch Video Solution

52. Differentiate meiosis II and mitosis.



Watch Video Solution

53. Write about the zygotene stage of cell division.



Watch Video Solution

54. What is the significance of meiosis?



Watch Video Solution

55. Distinguish between anaphase of mitosis and anaphase I of meiosis.



[Watch Video Solution](#)

56. Write significance of mitosis.



[Watch Video Solution](#)

57. What is the average cell cycle span for a mammalian cell?



[Watch Video Solution](#)

58. Distinguish cytokinesis from karyokinesis.



[Watch Video Solution](#)

59. What is G_0 (qiescent phase) of cell cycle?



[Watch Video Solution](#)

60. Why is mitosis called equational division?



[Watch Video Solution](#)

61. Name the stage of cell cycle at which one of the following events occur: Chromosomes are moved



Watch Video Solution

62. Name the stage of cell cycle at which one of the following events occur: Centromere splits and chromatids separate.



Watch Video Solution

63. Name the stage of cell cycle at which one of the following events occur: Pairing between homologous chromosomes takes place.



Watch Video Solution

64. Name the stage of cell cycle at which one of the following events occur: Crossing over between homologous chromosomes takes place.



Watch Video Solution

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



Watch Video Solution

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



Watch Video Solution

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



Watch Video Solution

68. Can there be DNA replication without cell division?



Watch Video Solution

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



Watch Video Solution

70. Discuss with your teacher about: haploid insects and lower plants where cell-division occurs.



Watch Video Solution

71. Discuss with your teacher about: some haploid cells in higher plants where cell-division does not occur.



[Watch Video Solution](#)

72. Analyse the events during every stage of cell cycle and notice how the following two parameters change: number of chromosomes (N) per cell



[Watch Video Solution](#)

73. Analyse the events during every stage of cell cycle and notice how the following two parameters change: amount of DNA content (C) per cell



Watch Video Solution

74. Fill in the blanks:

Pairs ofchromosomes are called bivalents.



Watch Video Solution

75. Fill in the blanks:

Synapsis takes place during..... .



Watch Video Solution

76. Fill in the blanks:

.....chromosomes are exactly alike.



Watch Video Solution

77. Fill in the blanks:

First meiotic division is calledphase.



Watch Video Solution

78. Fill in the blanks:

Division ofis known as karyokinesis.



Watch Video Solution

79. Fill in the blanks:

Division ofis known as cytokinesis.



Watch Video Solution

80. Fill in the blanks:

Separated.....are also called as
daughter..... .



Watch Video Solution

81. Fill in the blanks:

Chromosomes are thickest and shortest at..... .



Watch Video Solution

82. Fill in the blanks:

A prophase chromosome has.....chromatids.



Watch Video Solution

83. Fill in the blanks:

Protein.....is required for spindle formation.



Watch Video Solution

84. Fill in the blanks

Species A	Species B	Type of Interaction	Example
+	-	(i)	(ii)
+	+	(iii)	(iv)
+	(v)	Commensalism	(vi)



Watch Video Solution

85. Fill in the blanks:

G_1 chromosomes have.....chromatid.



Watch Video Solution

86. Fill in the blanks:

Three phases of interphase are....., S
and



Watch Video Solution

87. Fill in the blanks

Species A	Species B	Type of Interaction	Example
+	-	(i)	(ii)
+	+	(iii)	(iv)
+	(v)	Commensalism	(vi)



[Watch Video Solution](#)

88. Fill in the blanks:

Majority of lifespan of a cell is spent in

..... .



[Watch Video Solution](#)

89. Fill in the blanks:

In higher eukaryotes theegg begins the life.



Watch Video Solution

90. What is interkinesis?



Watch Video Solution

91. What are characteristic features of diakinesis?



Watch Video Solution

92. Define zygotic meiosis.



Watch Video Solution

93. what is gametic meiosis?



Watch Video Solution

94. Name five substages of prophase I of meiosis.



Watch Video Solution

95. Name the following scientists who:

Coined the term meiosis.



Watch Video Solution

96. Explain cytokinesis with the help of sketches only.



Watch Video Solution

97. What are sister chromatids?



Watch Video Solution

98. Which are four stages of mitotic phase?



Watch Video Solution

99. Who first observed the process of mitosis in animal cell?



Watch Video Solution

100. Name the phases of cell cycle. Discuss the vents occurring during prophase of mitosis.



Watch Video Solution

101. What a karyokinesis?



Watch Video Solution

102. What is main function of S phase?



Watch Video Solution

103. What is a tetrad?



Watch Video Solution

104. What are chiasmata?



Watch Video Solution

105. Cite four stages of M Phase of mitotic cell division.



Watch Video Solution

106. What type of spindle formation is in plants?



[Watch Video Solution](#)

107. What is endomitosis?



[Watch Video Solution](#)

108. Which are the shortest and longest phases of cell division?



[Watch Video Solution](#)

109. Define

synaptonemal complex.



Watch Video Solution

110. What is intranuclear mitosis?



Watch Video Solution

111. Name the stage of cell cycle of which synapsis takes place.



[Watch Video Solution](#)

112. What are the essential stages occurring during meiosis?



[Watch Video Solution](#)

113. What are the characteristics of important events which occur during prophase of mitosis?



[Watch Video Solution](#)

114. Differentiate mitosis and meiosis.



Watch Video Solution

115. Differentiate cytokinesis in plants and animals?



Watch Video Solution

116. What are the important activities in interphase?



Watch Video Solution

117. What are the basic phases of a cell cycle?



Watch Video Solution

118. Define cell cycle.



Watch Video Solution

119. What is G_o (quiescent phase) of cell cycle?



Watch Video Solution

120. What is karyotyping? Who studied human karyotype for the first time? Define idiogram.



Watch Video Solution

121. What is the significance of meiosis?



Watch Video Solution

122. Define crossing over. What is the significance of crossing over ?



Watch Video Solution

123. Where does meiosis takes place?



Watch Video Solution

124. Define endomitosis.



Watch Video Solution

125. Define zygotic meiosis.



Watch Video Solution

126. What are sister chromatids?



Watch Video Solution

127. Differentiate meiosis II and mitosis.



Watch Video Solution

128. Write about the zygotene stage of cell division.



Watch Video Solution

129. What is the significance of meiosis?



Watch Video Solution

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



Watch Video Solution

131. Write significance of mitosis.



Watch Video Solution

132. What is the average cell cycle span for a mammalian cell?



Watch Video Solution

133. Distinguish cytokinesis from karyokinesis.



Watch Video Solution

134. What is G_0 (qiescent phase) of cell cycle?



Watch Video Solution

135. Why is mitosis called equational division?



Watch Video Solution

136. Name the stage of cell cycle at which one of the following events occur: Chromosomes are moved



Watch Video Solution

137. Name the stage of cell cycle at which one of the following events occur: Centromere splits and chromatids separate.



Watch Video Solution

138. Name the stage of cell cycle at which one of the following events occur: Pairing between homologous chromosomes takes place.



Watch Video Solution

139. Name the stage of cell cycle at which one of the following events occur: Crossing over between homologous chromosomes takes place.



Watch Video Solution

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



Watch Video Solution

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



Watch Video Solution

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



Watch Video Solution

143. Can there be DNA replication without cell division?



Watch Video Solution

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



Watch Video Solution

145. Discuss with your teacher about: haploid insects and lower plants where cell-division occurs.



Watch Video Solution

146. Discuss with your teacher about: some haploid cells in higher plants where cell-division does not occur.



Watch Video Solution

147. Analyse the events during every stage of cell cycle and notice how the following two parameters change: number of chromosomes (N) per cell



Watch Video Solution

148. Analyse the events during every stage of cell cycle and notice how the following two parameters change: amount of DNA content (C) per cell



Watch Video Solution

