7 Cell Cycle And Cell Division

1. All cells reproduce by dividing into _ _ _ _ _ , with each parental cells giving rise to_ _ _ _ _ cells each time they divide.
   A)
   Easy Page No-162, Paragraph No-1
   A) One ; four daughter
   B) Two ; two daughter
   C) One ; two daughter
   D) Two ; four daughter

10.1 Cell Cycle

2. A cell cycle comprises all the listed events, except:
   Easy Page No-162, Paragraph No-2
   A) Cell growth
   B) DNA replication
   C) Transcription
   D) Cell division
3. Consider the following statements-
   Statement-I: cell growth (in terms of cytoplasmic increases) is a contingent process which occur during cell cycle.
   Statement-II: DNA synthesis occur only during one specific stage in the cell cycle.
   Statement-III: The event of cell cycle are under genetic control.
   Difficult Page No-162, Paragraph No-2
   A) Statement-I is false & statement-II and III are true
   B) Statement-I and II are false & statement-III are true
   C) All statement are true
   D) None of the above stated statement are true.

10.1.1 Phases of Cell Cycle

4. Cell of human divide once in approximately-
   Easy Page No-163, Paragraph No-1
   A) 60 minutes B) 90 minutes
   C) 24 hours D) None of these
5. Read the following statements and choose the correct option.
   Medium
   Page No-163, Paragraph No-1 and 2
   Statement A: The M-phase represents the phase when actual cell division occurs
   Statement B: Interphase represents the phase between two successive M-phases
   A) Only statement A is correct
   B) Only statement B is correct
   C) Both the statements are incorrect
   D) Both the statements are correct
6. Match the columns and choose the correct option
   Medium
   Page No-163, Paragraph No-1,2,3,4 and page No-164, paragraph No- 1 and 2

Column I		Column II	
(a)	G_1 phase	(i)	Quiescent stage of the cell cycle.
(b)	G_2 phase	(ii)	DNA denoted as 2C, increases to 4C
(c)	Synthesis phase	(iii)	Proteins are synthesized in preparation for mitosis
(d)	G_0 phase	(iv)	Cell contain initial amount of DNA i.e., 2C

   A) a-iv, b-iii, c-i, d-ii
   B) a-iv, b-iii, c-ii, d-i
   C) a-iii, b-i, c-iv, d-ii
   D) a-ii, b-iv, c-ii, d-i
7. An average duration of yeast cell cycle is-
   Easy
   Page No-163, Paragraph No-1
   A) 60 minutes B) 90 minutes
   C) 20 minutes D) One day
8. Cell cycle is divided into how many basic phases
   Easy
   Page No-163, Paragraph No-1
   A) One B) Two

C) Four D) Six

9. Which of following is/are enlisted as basic phases of cell cycle?
Easy
Page No-163, Paragraph No-3
A) G_0 phase B) S phase
C) Interphase D) Metaphase

10. The phase of cell cycle during which mitosis occur is-
Easy
Page No-163, Paragraph No-2
A) Interphase B) M-phase
C) G-phase D) S-phase

11. The phase between two successive M-phase is-
Easy
Page No-163, Paragraph No-2
A) Interphase B) G-phase
C) S-phase D) M-phase

12. The time span of interphase and M-phase is an average human cell cycle is-
Easy
Page No-163, Paragraph No-2
A) 12 hours each
B) 95% M-phase & one hour interphase
C) 8 hour M-phase & 16 hour interphase
D) One hour M-phase & 23 hour interphase

13. The correct sequence of cell is-
Easy
Page No-163, Figure No-10.1
A) M -> G_2 -> S -> G_1
B) S -> G_2 -> G_1 -> M
C) M -> G_1 -> G_2 -> S
D) G_1 -> S -> G_2 -> M

14. The process which mark as start & usually end of M-phase are-
Medium
Page No-163, Paragraph No-3
A) Division of cytoplasm & Karyokinesis respectively
B) Cytokinesis and division of cytoplasm respectively
C) Separation of daughter chromosome & cytokinesis respectively
D) Karyokinesis & karyokinesis respectively

15. Resting phase of cell-cycle is-
Easy
Page No-163, Paragraph No-3
A) M-phase B) Interkinesis
C) G_1 & G_2 phase D) Interphase

16. Interphase is divided into_ _ _ phases further.
Easy
Page No-163, Paragraph No-3
A) 4 B) 3
C) 2 D) 5

17. Which of following stage corresponds to the interval between mitosis & initiation of DNA replication?
Medium
Page No-163, Paragraph No-4
A) S-phase B) G_2-phase
C) M-phase D) G_1-phase

18. Select the correct statement about G_1 phase-
Easy
Page No-163, Paragraph No-4
A) Cell is metabotically inactive
B) DNA does not replicate
C) DNA replicate
D) Chromosome number is doubled

19. Correct sequence of phase of M-phase is-
Easy
Page No-163, Figure No-10.1
A) Cytokinesis -> Prophase -> Metaphase -> Anaphase -> Telophase
B) Prophase -> Anaphase -> Metaphase -> Telophase -> Cytokinesis
C) G_0 -> G_1 -> S -> G_2
D) None of these

20. What would be amount of DNA (C) and number of chromosome (N) in animal cell just after completion of S phase if the initial amount is 2C and 2N?
Difficult
Page No-163, Paragraph No-4
A) 2C and 2N respectively
B) 4C and 4N respectively
C) 4C and 2N respectively
D) 2C and 4N respectively

21. Duplication of centriole occur in-
Easy
Page No-163, Paragraph No-5
A) M-phase B) G_2-phase

C) S-phase D) G_0-phase

22. The S-phase of animal cell marked by-
Easy
Page No-163, Paragraph No-5
A) DNA replication
B) Centriole duplication
C) Cell growth and protein synthesis
D) A & B

23. The G_2 of cell cycle is pronounced by-
Easy
Page No-163, Paragraph No-5
A) Cell growth and division
B) Cell duplication
C) Protein synthesis & centriole duplication
D) Cell growth & protein synthesis

24. Find mismatch column.
Difficult
Page No-163, Paragraph No-1,2,3,4

	Column-I	Column-II
A)	Karyokinesis	Separation of daughter chromosome
B)	cytokinesis	Division of cytoplasm
C)	Interphase	Smallest phase of cell cycle
D)	M-phase	Mitosis phase

25. The inactive stage of cell cycle is-
Easy
Page No-164, Paragraph No-1
A) Quiescent stage B) G_1
C) S – Phase D) A & B

26. Choose the correct statement with respect to G_0 phase:
Medium
Page No-164, Paragraph No-1
A) Also known as quiescent stage and start after G_2 phase
B) Cell of this stage remain unactive and no longer proliferation
C) Cell of this stage remain in active but no longer proliferation unless called to do so depending on the requirement of organism
D) Cell of this stage remain active and proliferation till death without any condition

27. How many chromosome does onion somatic cell have –
Easy
Page No-164, Top box
A) 12 B) 14
C) 16 D) 20

28. What number of chromosome does onion somatic cell have in G, S, G_2 & M – phase respectively
Medium
Page No-164, Top box
A) 32, 16, 16, 32 B) 16, 32, 16, 16
C) 16, 16, 16, 16 D) None of these

29. Mitotic division occur in –
Easy
Page No-164, Paragraph No-2
A) Diploid somatic cell
B) Haploid male honey bee
C) A & B
D) Gametes

30. Match the following column:
Difficult
Page No-163 & 164, Paragraph No-1,2

	Column – I		Column – II
a)	G_1 Phase	i)	Metabolically active cell, do not proliferate
b)	S Phase	ii)	Content of DNA doubled
c)	G_0 phase	iii)	Protein synthesised
d)	G_2 Phase	iv)	Metabolically active cell grows continuously

A) a – iv), b – ii), c – i), d – iii)
B) a – i), b – ii), c – iv), d – iii)
C) a – iv), b – iii), c – i), d - ii
D) None of these

10.2 M–Phase

31. M – phase refer to –
Easy
Page No-164, Paragraph No-3
A) Metaphase B) Meiosis
C) Karyokinesis D) A & B both

32. Most dramatic period of cell cycle is-
Easy
Page No-164, Paragraph No-3
A) Gap 1 only B) M-phase

C) S-phase only D) Interphase

33. Equational division refer to –
Easy
Page No-164, Paragraph No-3
A) Meiosis
B) Mitosis
C) Number of cell chromosome in parent & progeny cell is same
D) B & C

34. Karyokinesis of mitosis is divided into _____ stages
Easy
Page No-164, Paragraph No-3
A) 2 B) 3
C) 4 D) 8

35. Correct order of mitotic division is –
Easy
Page No-164, Paragraph No-3
A) Metaphase → Anaphase → Prophase → Telophase
B) Prophase → Metaphase → Anaphase → Telophase
C) Anaphase → Telophase → Metaphase → Prophase
D) Telophase → Prophase → Anaphase → Metaphase

10.2.1 Prophase

36. Select the correct option:
I) Prophase is first stage of Karyokinesis.
II) It occur after completion of protein synthesis during cell cycle
Easy
Page No-164, Paragraph No-4
A) Both (I) & (II) are true
B) Both (I) & (II) are false
C) (I) is true but (II) is false
D) (I) is false but (II) is true

37. During prophase, which of the following occurs?
Medium
Page No-164, Paragraph No-4
A) Condensation of chromosomal material
B) Chromosomal material become tangled
C) Centrosome duplication
D) Movement of both centriole at one pole of cell

38. Choose the incorrect match
Difficult
Page No-164, Paragraph No-4; Page No-165, Paragraph No-2
A) Beginning of movement of chromosome to opposite poles – Prophase
B) Two asters with spindle – Mitotic apparatus
C) Attachment of spindle – Metaphase
D) Chromosome move to opposite poles – Metaphase

39. Mitotic apparatus consist of –
Easy
Page No-164, Paragraph No-6
A) Four asters with spindle fibres
B) One asters with spindle fibres
C) Two asters with spindle fibres
D) Centrosome with their microtubules without spindle fibres.

40. How many of following structures are observed when cells are viewed under the microscope at end of prophase Golgi body, ER, Nucleolus, Nuclear envelop, centrosome
Medium
Page No-165, Paragraph No-1
A) Zero B) One
C) Three D) All of these

41. How do the chromosome appear during prophase of animal cell during mitosis
Easy
Page No-164, Paragraph No-6
A) Consisting of four chromatid which remain attached to centromere
B) Consisting of two chromatid which remain attached to centromere
C) Consisting of four chromatid without centromere
D) As chromatin material without any defined structure

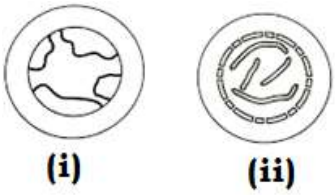
42. Asters formed during prophase are –
Easy
Page No-169, Paragraph No-6
A) Composed of microtubules originate from centromere
B) Composed of protein which secreted by golgi body
C) Highly condensed area of chromosome

D) None of these

43. What difference would indicate early prophase & late prophase of animal cell.
Difficult
Page No-167 and 165, Paragraph No-

	Early Prophase	Late Prophase
A)	Nucleolus & nuclear membrane present	Nucleolus & nuclear membrane are absent
B)	Chromosomes are highly condensed	There is no condensation of chromosome
C)	Nucleolus & centrosome are present	Nucleolus & centromere are absent
D)	Other organelles like ER, golgi body complexes are not observed	Other organelles like ER, golgi complex are observed.

44. Identify correct stage of given diagram.
Difficult
Page No-165, Figure No-10.2 (a)

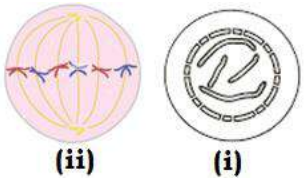


A) Late prophase Early prophase
B) Early prophase Late prophase
C) Metaphase Prophase
D) Prophase Metaphase

10.2.2 Metaphase

45. The complete disintegration of nuclear envelop marks start of:
Easy
Page No-165, Paragraph No-2
A) Late prophase
B) Metaphase
C) Anaphase
D) None of these

46. Identify stage of given diagram
Difficult
Page No-165, Figure No-10.2



A) Early prophase, metaphase
B) Late prophase, transition to metaphase
C) Early prophase, transition to metaphase
D) Late prophase, metaphase

47. Which stage of cell cycle is best to study chromosome morphology
Easy
Page No-165, Paragraph No-2
A) Late prophase B) Early prophase
C) Anaphase D) Metaphase

48. Condensation of chromosome is completed in –
Easy
Page No-165, Paragraph No-2
A) Stage where centrosome is duplicated
B) Stage where DNA content doubled
C) Stage where complete integration of nuclear envelope occurs
D) Stage where complete disintegration of nucleus envelope occurs

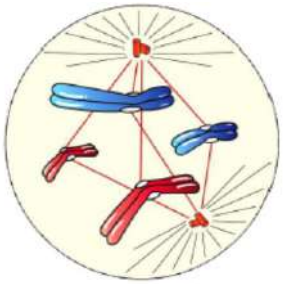
49. Metaphase chromosome is made up of –
Easy
Page No-165, Paragraph No-2
A) Two non – sister chromatid which are held together by centromere
B) Four sister chromatid which are held together by centromere
C) Two sister chromatid which are held together by centromere
D) Four non – sister chromatid which are held together by centromere

50. Kinetochores are
Easy
Page No-165, Paragraph No-2
A) Precursors of microtubules
B) Sites of attachment of spindle fibres
C) Site for origination of spindle fibres
D) Small disc – shaped structure at telomere of chromosome

51. Metaphase is characterised by –
Easy
Page No-165, Paragraph No-2

A) Some chromosomes coming to lie at the pole
B) One chromatid of each chromosome connected by its centromere to spindle fibres from one pole
C) Sister chromatid connected by its kinetochore to spindle fibres from opposite poles
D) All of these

52. Identify stage
Difficult
Page No-165, Figure No-2 Part b.



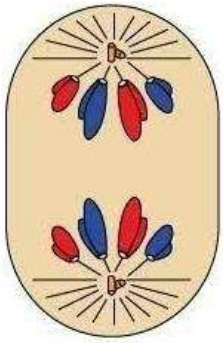
A) Transition to metaphase
B) Anaphase
C) Metaphase
D) Telophase

10.2.3 Anaphase

53. At the onset of anaphase, each chromosome split into –
Easy
Page No-165, Paragraph No-2
A) One chromatid
B) Four daughter chromatids
C) Two daughter chromosomes
D) Eight chromatids

54. Anaphase is characterised by –
Easy
Page No-165, Paragraph No-3
i) Migration of daughter chromatid toward equator.
ii) centromere of each chromosome remain directed toward pole
iii) centromere of each chromosome remain directed toward equator
iv) Chromatid split and centromere separate
v) Chromatid separate after centromere split
A) i, ii, v B) ii, v
C) iii, v D) ii, iv

55. Identify stage –
Difficult
Page No-166, Figure No-10.2 (c)



A) Anaphase B) Telophase
C) Interphase D) Metaphase

10.2.4 Telophase

56. During telophase:
(i) Chromosome cluster at opposite spindle poles
(ii) Two daughter nuclei formed
(iii) Chromosomes lose their individuality
(iv) It is reversal of prophase
(v) Nucleolus is not reformed
Choose the incorrect statement:-
Medium
Page No-166, Paragraph No-2
A) i), (ii) B) (iii), (iv)
C) (v) only D) none of these

10.2.5 Cytokinesis:

57. Match the following column –
Difficult
Page No-166, Paragraph No-3

	Column I		**Column II**
a	Syncytium	i	Divide the cytoplasm of animal cell
b	Cell-plate	ii	Occur in liquid endosperm of coconut
c	Cell furrow	iii	Method of cytokinesis in plant cell

A) a-iii, b-ii, c-i

B) a-ii, b-iii, c-i
C) a-i, b-ii, c-iii
D) a-ii, b-i, c-iii

58. Cell plate represent –
Easy
Page No-166, Paragraph No-3
A) Primary lamella
B) Middle lamella
C) Both
D) formation of plate by lysosome

10.3 Cytokinesis:

59. Mitosis usually results in
Easy
Page No-167, Paragraph No-1
A) haploid daughter cells with identical genetical complement
B) growth of multicellular organism
C) diploid daughter cells without identical genetical complement
D) haploid daughter cells without identical genetical complement

60. Which one is odd w.r.t. significance of meiosis?
Medium
Page No-167, Paragraph No-1-4, 170 paragraph 2
A) Increase genetic variability in organisms
B) Helps in restoring of original chromosome number in a sexually reproducing species.
C) Ensure production of haploid phase
D) Cell repair

61. The growth in plant is/are contributed by
Easy
Page No-167, Paragraph No-1
A) Mitotic division in apical meristem
B) Meiotic division in lateral meristem
C) Meiotic division in apical meristem
D) A & B both

62. a) The nucleo-cytoplasmic ratio in organism is restore by mitosis
b) The cells of the upper layer of the epidermis, cells of lining of gut, and blood cells are being constantly replaced by Mitotic division.
Choose the correct option from following :-
Medium
Page No-167, Paragraph No-2
A) Statement (a) is true but (b) is false
B) Statement (b) is true but (a) is false
C) Statement (a) & (b) are true
D) Statement (a) & (b) are false

10.4 Meiosis:

63. Meiosis result in
Easy
Page No-167, Paragraph No-3
A) production of gametes
B) reduction in number of chromosomes
C) introduction of variation
D) all of these

64. Meiosis ensure the production of ..... phase in life cycle of sexually reproduction organisms whereas fertilization restore ..... phase.
Easy
Page No-167, Paragraph No-3
A) haploid & haploid respectively
B) haploid & diploid respectively
C) diploid & diploid respectively
D) diploid & haploid respectively

65. Which of the following statement is correct?
Medium
Page No-167, Paragraph No-3
A) Meiosis involves single cycle of nuclear and cell division
B) Doubling of chromosomes occur once during s-phase
C) Recombination between sister chromatid of non-homologous chromosome
D) Pairing of homologous chromosome

66. At the end of meiosis-II, how many haploid cells are formed?
Easy
Page No-167, Paragraph No-3
A) One B) Two
C) Zero D) Four

67. Recombination occurs between –
Easy
Page No-167, Paragraph No-3

A) sister chromatid of non-homologous chromosome
B) non-sister chromatid of non homologous chromosome
C) sister chromatid of homologous chromosome
D) non-sister chromatid of homologous chromosome

10.4.1 Meiosis-I

68. Longest phase of meiosis is :
Easy
Page No-168, Paragraph No-1
A) Prophase-I B) Prophase-II
C) Metaphase-I D) Telophase-II

69. During which of the given phases, homologous chromosomes separate, while sister chromatids remain associated at their centromere?
Difficult
Page No-169, Paragraph No-1
A) Anaphase of mitosis
B) Anaphase II
C) Anaphase I
D) Metaphase I

70. Prophase-I of meiosis is divided into ..... phase based on chromosomal behaviour.
Easy
Page No-168, Paragraph No-1
A) 2 B) 3
C) 4 D) 5

71. Identify correct sequence of prophase-I.
Easy
Page No-168, Paragraph No-1
A) leptotene, Diplotene, Zygotene
B) Zygotene, pachytene, leptotene
C) Diplotene, Zygotene, Pachytene
D) None of these

72. A bivalent is
Easy
Page No-168, Paragraph No-2
A) Pair of non-homologous chromosomes
B) The complex formed by a pair of synapsed homologous chromosomes.
C) Formed during pachytene statge
D) More clearly visible at zygotene Stage

73. Synaptonemal complex dissolves during-
Easy
Page No-168, Paragraph No-2
A) Leptotene B) Diakinesis
C) Zygotene D) Diplotene

74. During which phase of meiosis centromere splits?
Easy
Page No-169, Paragraph No-2
A) Anaphase I B) Anaphase II
C) Telophase II D) Telophase I

75. Choose the correct option with respect to leptotene:
Medium
Page No-168, Paragraph No-2
(i) It is the foremost and the short-lived stage of prophase
(ii) It begins when the process of compaction of chromosome is accomplished
(iii) chromosome become visible under light microscope
(iv) It followed by zygotene
A) One statement that is (ii) is incorrect
B) i, ii and iii are correct while (iv) is incorrect
C) iii & iv are correct while i, ii are incorrect
D) All statement are correct

76. Zygotene is characterized by –
Easy
Page No-168, Paragraph No-2
(i) chromosome start pairing
(ii) non-homologous chromosome paired
(iii) synapsis occurs between non-homologous chromosomes
(iv) formation of synaptomeal complex in homologous chromosomes
(v) formation of synaptonemal complex in non homologous chromosomes
A) i, ii, v B) i, iii, iv
C) i, iv D) i, ii, iii, v

77. Bivalent stage is –
Easy
Page No-168, Paragraph No-2
A) complex formed by a pair of synapsed homologous chromosomes

B) complex formed by a pair of synapsed non-homologous chromosomes
C) complex formed by four pair of synapsed homologous chromosomes
D) complex formed by four pair of synapsed non-homologous chromosomes

78. Crossing over occurs in –
Easy
Page No-168, Paragraph No-2
A) leptotene B) zygotene
C) Pachytene D) diplotene

79. Pachytene is stage that is/are :-
Easy
Page No-168, Paragraph No-2
A) long lived than zygotene
B) two chromatid of each bivalent chromosomes becomes distinct
C) short lived than leptotene
D) long lived than leptotene & short lived than zygotene

80. Choose the correct statement from following:
Medium
Page No-168, Paragraph No-2
A) Pachytene is characterised by appearance of recombination nodule
B) Recombination nodule is site of crossing over
C) Both A & B
D) Recombination nodule formed in diplotene

81. Given below are statements (I - VI). Choose correct set with respect to crossing over.
Medium
Page No-168, Paragraph No-2
I) It occurred between sister chromatid of homologous chromosomes.
II) It is enzyme mediated process.
III) Recombinase enzyme involved in it.
IV) It occurs at recombination nodules.
V) It occurs between non sister chromatid of non-homologous chromosomes.
VI) It occurs between sister chromatid of non-homologous chromosomes.
A) I, II, III & IV B) V, II, III & IV
C) II, III, IV & VI D) II, III & IV

82. Diplotene is not characterized by
Medium
Page No-168, Paragraph No-3
A) Dissolution of synaptonemal complex.
B) Tendency of recombined homologous chromosomes of tetrad to separate from each other, except at sites of crossover crossovers.
C) Formation of chiasmata
D) Tendency of recombined non homologous chromosome of bivalent to separate from each other, except at sites of crossover.

83. Chiasmata is –
Easy
Page No-168, Paragraph No-3
A) X – shaped structures
B) Formed by recombined chromosome yet to be separated
C) Site of cross over
D) All of these

84. Which stage of Meiosis – I last for months or year in some vertebrate oocytes?
Easy
Page No-168, Paragraph No-3
A) Diakinesis B) Diplotene
C) Pachytene D) Zygotene

85. Diakinesis marked by –
Easy
Page No-168, Paragraph No-4
A) Terminalisation of chiasmata
B) Chromosomes are fully condensed
C) Meiotic spindle assembled
D) All of these

86. Meiotic spindle assembled to prepare –
Easy
Page No-168, Paragraph No-4
A) Non homologous chromosome separation.
B) Formation of aster ray.
C) Homologous chromosome separation.
D) Both B & C

87. Match the following

	Column I		**Column II**
I	Leptotene	a	Compaction of chromosome
II	Zygotene	b	Separation of chromosome

			except at crossover
III	Pachytene	c	Terminalisation of chiasmata
IV	Diakinesis	d	Appearance of recombination of nodules
V	Diplotene	e	Synapsis

Difficult

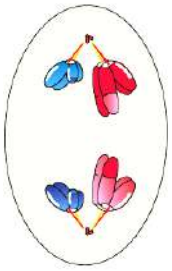
Page No-168, Paragraph No-1,2,3,4

A) I-a, II-e, III-d, IV-c, V-b
B) I-a, II-b, III-d, IV-c, V-e
C) I-c, II-d, III-a, IV-e, V-b
D) None of these

88. Identify stage

Medium

Page No-169, Figure No-10.3



A) Homologous chromosome separate, while sister chromatid remain associated at centromere.
B) Homologous chromosome along with sister chromatid separate.
C) Spindle attached to Kinetochore in this stage.
D) This stage followed by diakinesis.

89. Spindle fibre attach to kinetochores of homologous chromosome in –

Easy

Page No-168, Paragraph No-5

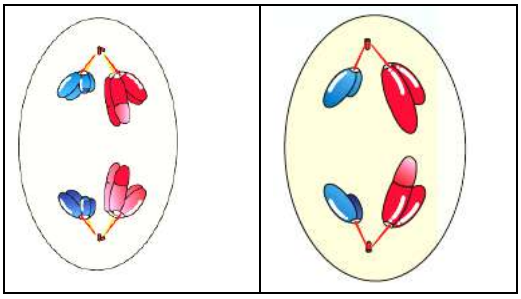
A) Metaphase – I of meiosis
B) Metaphase – II of meiosis
C) Both A & B
D) Anaphase of mitosis

90. Identify stage

Easy

Page No-169, Figure No-10.3 & Page No-170, Figure No-10.4

a	b



A) a = Anaphase I, b = Anaphase II
B) a = Anaphase II, b = Metaphase II
C) a = Anaphase II, b = Anaphase I
D) a = Anaphase I, b = Anaphase II

91. Dyads of cells are formed in –

Easy

Page No-169, Paragraph No-2

A) Telophase – I B) Telophase – II
C) Diakinesis D) Both A & B

10.4.2 Meiosis-II

92. Meiosis – II initiated immediately after

Easy

Page No-169, Paragraph No-3

A) Telophase – I
B) Prophase
C) Cytokinesis – I
D) Chromosome have fully elongated

93. Which of the following resembles with normal mitosis-

Medium

Page No-169, Paragraph No-3

A) Meiosis – I B) Meiosis – II
C) Both D) None of these

94. In the beginning of Meiosis – II, a cell contain four chromatid. What number of chromatid is expected to be in each daughter cell at end of telophase – II

Medium

Page No-169, Paragraph No-3

A) 4 B) 2
C) 8 D) 16

95. Find mismatched column

Difficult

Page No-169,314 & 170 Paragraph No-1

	Column I	Column II

A	Metaphase – II	Chromosomes align at equator and microtubule from opposite poles of spindle get attached to kinetochores of non-sister chromatid
B	Prophase – II	Nuclear membrane disappear
C	Telophase – II	Formation of tetrad of cells
D	Anaphase – II	Splitting centromere which hold sister chromatid together, allow them to move toward opposite pole of cells

96. Movement of chromatid toward opposite pole is achieved by-

Easy

Page No-169, Paragraph No-4

A) Shortening of microtubules attached to centromere
B) Shortening of microtubules attached to kinetochores
C) Elongating of microtubules attached to kinetochores
D) Elongating of microtubules attached to centromere

10.5 Significance of Meiosis

97. Conservation of specific chromosome number of each species is achieved across generations in sexually reproducing organism is done by –

Easy

Page No-170, Paragraph No-2

A) Mitosis B) Meiosis only
C) Meiosis & Mitosis D) None of these

98. Choose the correct statement about meiosis

Medium

Page No-170, Paragraph No-2

A) Increase genetic variability of an individual of an organism
B) decrease genetic variability of an organism from one generation to other
C) Reduction of chromosome by one-fourth
D) Play an important role in evolution

ANSWER KEY
CELL CYCLE AND CELL DIVISION

Q	1	2	3	4	5	6	7	8	9	10
Ans	B	C	A	C	D	D	B	B	C	A
Q	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Ans	A	D	D	C	D	B	D	B	A	C
Q	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
Ans	C	D	D	C	A	C	C	C	A	A
Q	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
Ans	C	B	D	C	B	A	A	A	C	A
Q	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
Ans	D	A	B	B	B	D	D	D	C	B
Q	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
Ans	A	C	C	B	A	B	B	B	A	D
Q	**61**	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**
Ans	A	C	D	D	D	D	C	A	C	D
Q	**71**	**72**	**73**	**74**	**75**	**76**	**77**	**78**	**79**	**80**
Ans	C	B	D	B	C	A	A	C	A	C
Q	**81**	**82**	**83**	**84**	**85**	**86**	**87**	**88**	**89**	**90**
Ans	D	D	B	D	D	C	A	A	A	A
Q	**91**	**92**	**93**	**94**	**95**	**96**	**97**			
Ans	A	C	B	B	B	B	D			