BIOLOGY

BOOKS - UNIVERSAL BOOK DEPOT 1960 BIOLOGY (HINGLISH)

CELL CYCLE AND CELL DIVISION

Cell Cycle And Cell Division

1. The term "meiosis" was coined by

A. Hertwig and Van Bevedin

B. Sutton and Boveri

C. Hofmeister and Waldeyer

D. Farmer and Moore

Answer: d

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2. Coiling of chromatids in mitotic and meiotic division is

A. Pranemic in both

B. Plectonemic in both

C. Paranemic in mitosis and plectonemic in meiosis

D. Plectonemic in mitosis and paranemic in meiosis

Answer: d

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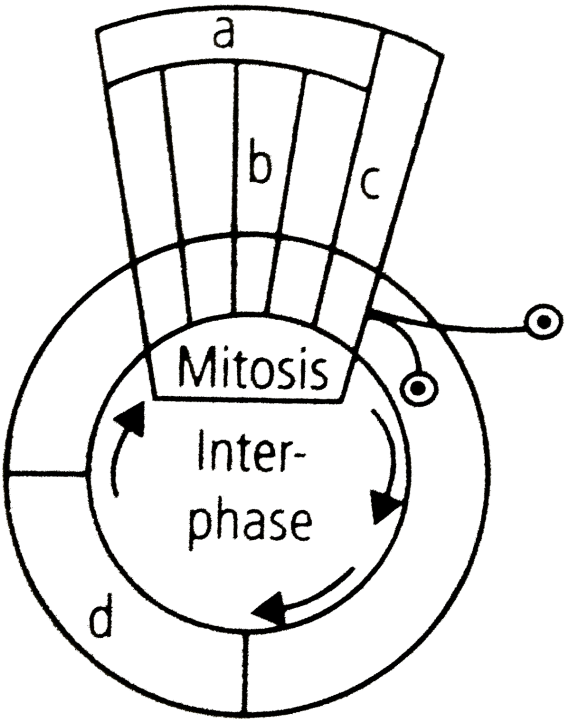
3. The given figure is a schematic break-up of the phases/stages of cell cycle. Select the correct option regarding it.



A. B-Metaphase

B. C-Karyokinesis

C. D-Synthetic phase

D. A-Cytokinesis

Answer: C

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4. Condensation of chromosomes occurs in

A. Prophase I

B. Prophase II

C. Anaphase

D. Metaphase

Answer: a

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5. Find the correctly matched pairs and choose the correct option.

A. A and B are correct

B. B and D correct

C. B and E are correct

D. B and C are correct

Answer: c

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6. The role of meiosis

A. Formation of gametes

B. Brinigng haplophase

C. Brining diplophase

D. Completing life cycle

Answer: b

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7. 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 D only

B. A and D only

C. B and C only

D. C,D and E only

Answer: b

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8. Which stage connecting link between Meiosis 1 and Meiosis II

A. Interphase I

B. Interphase II

C. Interkinesis

D. Anaphase I

Answer: C

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9. Which of the following stage is affected by colchicum Or Spindle apparatus is formed during which stage of mitosis

A. Metaphase

B. Prophase

C. Interphase

D. Anaphase

Answer: A

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10. $G_{(0)}$ state of cells in eukaryotic cell cycle denotes

A. Check point before entering the next phase

B. Pause in the middle of a cycle to cope with the temporary delay

C. Death of a cell

D. Exit of cells form the cell cycle

Answer: D

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11. Three copies of chromosome -21 in a chield with Down's syndrome have been formed analysed using molecular biology technology to detect any possible DNA polymorphism with reference to different alleles located on chromosome -21. Results showed that out of 3 copies 2 of the chromosomes of the child contain the same alleles as one of the mother's

alleles. Based on this when did the non-disjunction event most likely occur.

A. Paternal meiosis-I

B. Meternal meiosis-I

C. Paternal meiosis-II

D. Maternal meiosis-II

Answer: d

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12. Mitosis occurs in

A. Haploid individuals

B. Diploid individuals

C. Both a and b

D. In bacteria only

Answer: C

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13. Which is not true for anaphase

A. Golgi body and ER are reformed

B. Chromosomes move to opposite poles

C. Spindle poles move farther apart

D. Centromeres split and chromatids separate

Answer: a

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14. Cyclin is associated with which one of the following Or Diploid living organism develops from zygote by repeated cell divisions is called

A. Clycolysis

B. Cyclosis

C. Haemolysis

D. Mitosis

Answer: d

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15. For viewing diakinesis which one of the following would be a suitable material

A. Onion root tip

B. Leaf of Dichanthium

C. Rat tail

D. Flower bud.

Answer: d

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16. Which is not the character of mitosis

A. Leptotene

B. Zygotene

C. Pachytene

D. All of the above

Answer: d

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17. Synaptonemal complex is formed during

A. Meiois

B. Amitosis

C. Mitosis

D. Cytokinesis

Answer: a

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18. Synaptonemal complex was discovered in

A. 1956

B. 1650

C. 1935

D. 1980

Answer: a

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19. Recombinant nodules are found during which of the following

A. Anaphase

B. Prophase

C. Telophase

D. Metaphase

Answer: B

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20. Four daughter cells formed after meiosis are

A. Genetically similar

B. Genetically different

C. Anucletate

D. Multinucleate

Answer: b

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21. The term synaptonemal complex refers to site of

A. Chromatid separation

B. Spindle attachemtn

C. Replication

D. Chromosome allgnment and rdcombination

Answer: d

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22. Repulsion of homologous chromosomes takes place in

A. Zygotene

B. Leptotene

C. Diakinesis

D. Diplotene

Answer: d

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23. Which cell division is found during cleavage

A. Amitosis

B. Mitosis

C. Closed mitosis

D. Meiosis

Answer: c

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24. 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. Kayokinesis

C. Crossing over

D. Interkinesis

Answer: a

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25. How many ATP is required during anaphase to move chromosomes from equator to the poles

A. 38ATP

B. 5ATP

C. 30ATP

D. 76ATP

Answer: c

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26. Mitosis is the process by which eukaryotic cells

A. Expose the gnenes for protein synthesis

B. Become specialized in structure and function

C. Multiply

D. Grow

Answer: c

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27. In pachytene satage of meiosis the chromosomes appear

A. Single stranded

B. Double stranded

C. Three stranded

D. Four stranded

Answer: d

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28. Microtubule depolymerizing durg such as colchicine is expected to

A. Inhibit spindle formation during mitosis

B. Inhibit cytokinesis

C. Allow mitosis beyond metaphase

D. Induce formation of multiple contractile rings.

Answer: a

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29. Recombination of genes occur at

A. Prophase in mitosis

B. Prophase I in meiosis

C. Prophase II in meiosis

D. Metaphase II in meiosis

Answer: b

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30. The second division in meiosis is called

A. Equational division

B. Reduction division

C. Multiplied division

D. None of the above

Answer: a

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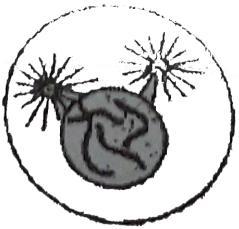
31. Which stages of cell division do the following figures A and B represent respectively

A



B

A. Prophase-anaphase

B. Metaphase-Telophase

C. Telophase-Metaphase

D. Late Anaphase-Prophase

Answer: d

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32. Select correct option

	I		I
(A)	Synapsis aligns homologous chromosomes	(i)	Anaphase-II
(B)	Synthesis of RNA and protein	(ii)	Zygotene
(C)	Action of enzyme recombinase	(iii)	G_2-phase
(D)	Centromeres do not separate but chromatids move towards opposite poles	(iv)	Anaphase-I
		(v)	Pachytene

A. (A) (B) (C) (D)
(ii) (iii) (v) (iv)

B. (A) (B) (C) (D)
(i) (ii) (v) (iv)

C. (A) (B) (C) (D)
(ii) (iii) (iv) (v)

D. (A) (B) (C) (D)
(ii) (i) (iii) (iv)

Answer: a

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

A. Mitosis occurs after G_0 phase

B. Biocatalysts can be used to exit G_0 phase

C. Cell volume keeps on increasing during this phase

D. Cell metabolism occurs continuously in G_0 phase

Answer: a

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34. A somatic cell that has just completed the S-phase of its cell cycle, as compared to gamete of the same species, has

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

B. Twice the number of chromosomes and four times the amount of DNA

C. Four time the number of chromosomes and twice the amount of DNA

D. Twice the number of chromosmes and twice the amount of DNA

Answer: b

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35. Arrange the following events of meiosis in correct sequence

(A) Crossing over

(B) Synapsis

(C) Termilisation 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

Answer: a

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36. In which stage of meiosis crossing over takes place

A. Prophase-I

B. Prophase

C. Metaphase

D. Anaphase

Answer: a

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37. 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. $\begin{matrix} A & B & C \\ \text{Chromonema} & \text{Cromatin} & \text{Metaphase} \end{matrix}$

B. $\begin{matrix} A & B & C \\ \text{Chromatin} & \text{Chromatid} & \text{Metaphase} \end{matrix}$

C. $\begin{matrix} A & B & C \\ \text{Chromonema} & \text{Chromosome} & \text{Anaphase} \end{matrix}$

D. $\begin{matrix} A & B & C \\ \text{Chromonema} & \text{Chromatid} & \text{Anaphase} \end{matrix}$

Answer: a

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38. The best stageto count the number of chromosomes during mitiosis is or structure of chromosomes can be best seen at Or In which phase of

mitosis the chromosomes are arranged around the equator of the spindle

A. Prophase

B. Metaphase-Telophase

C. Anaphase

D. Telophase

Answer: b

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39. In 'S' phase of the cell cycle

A. Chromosome number is increased

B. Amount of DNA is reduced to half in each cell

C. Amount of DNA doubles in each cell

D. Amount of DNA remains same in each cell

Answer: c

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40. Homologous pairing in prophase I of meiosis I is called

A. Synapsis

B. Linkage

C. Crossing over

D. Syndesis

Answer: a

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41. In meiosis, the centromere divides during

A. Prophase-I

B. Metaphase-I

C. Anaphase-I

D. Anaphse-II

Answer: d

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42. During interphase, RNA and proteins are synthesized in

A. S phase

B. G_1 phase

C. G_2 phase

D. In both G_1 and G_2 phases

Answer: d

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43. Four chromatids and two centromeres which are homologous occurs in

A. Zygotene

B. Diplotene

C. Diakinesis

D. Pachytene

Answer: a

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44. The number of chromosome groups at the equatorial plate in metaphase-I of meiosis in a plant with 2n=50 shall be

A. 50

B. 25

C. 30

D. 100

Answer: b

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45. the singifincane of meiosis lies in

A. Reduction of the diploid number of chromosomes to haploid

B. Maintaining constancy in the number of diploid chromosomes during sexual reproduction

C. Production of genetic variability in the population of a species

D. All the above

Answer: d

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46. 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. Only G_2

B. G_2 and M

C. G_0 and G_1

D. G_1 and S

Answer: A

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47. The given figure represent a sequence in cell division

The missing stage in the above sequence is

A. (a)

B. (b)

C. (c)

D. (d)

Answer: C

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48. 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-I

B. Metaphase II

C. Anaphase I

D. Anaphase II

Answer: c

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49. Which phase comes in between the G_1 and G_2 phase of cell cycle. Or The formation of chromatid takes place in

A. M-phase

B. $G_0 -$ phase

C. S-phase

D. Interphase

Answer: c

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50. During mitosis ER and nucleolus begin to disappear at

A. Early prophase

B. Late prophase

C. Early metaphase

D. Late metaphase

Answer: A

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51. Mathc List I and List II and select the correct answer using the code given belwo in the lists:

List I (Phase of meiosis)	List II (Event that occurs)
Prophase I	Crossing over occurs
Metaphase I	Sister chromatids migrate to opposite poles
Anaphase I	Homologous line up at equator in pairs

A. 1,2 and 3 are correct

B. 1 and 2 are correct, 3 is false

C. 1 is correct, 2 and 3 are false

D. 1 and 3 are correct, 2 is false

Answer: c

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52. Chromosome number is halved in meiosis during

A. Metaphase I

B. Anaphase I

C. Metaphase II

D. Telophase I

Answer: b

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53. Yeast cell can progress through the cell cycle in about

A. 30 minutes

B. 60 minutes

C. 90 minutes

D. 120 minutes

Answer: C

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54. Normal cellular activity , such as protein synthesis occur primarily during

Or

Chromosome replicate in which stage of meiosis

A. Interphase

B. Anaphase

C. Metaphase

D. Prophase

Answer: a

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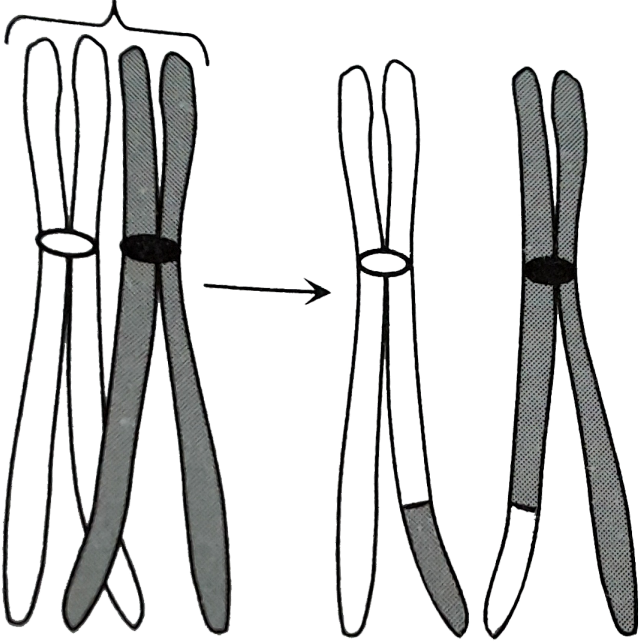
55. Given below is the representation of a certain event at a particular stage of a type of cell division. Which is this stage



A. prophase I during meiosis

B. Prophase II during meiosis

C. Prophase of Mitosis

D. Both prophase and metaphase of mitosis

Answer: a

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56. In mitosis the movement of chromosmes requires

A. Presence of centromere

B. Plasmalemma

C. Spindle fibres

D. Nucleotides

Answer: c

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57. 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. Prophase

B. Metaphase II

C. Anaphase

D. Interphase

Answer: d

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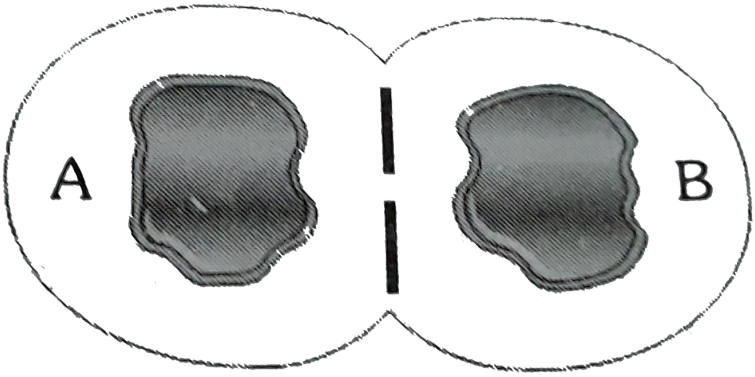
58. The given diagram shows a cell



Which of the following statement related to the image is not correct.

A. The nuclear envelope is disappearing

B. The cell furrow is forming

C. It is an animal cell

D. It is in telophase

Answer: A

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59. Meiosis is found at

A. Shoot apex

B. Reproductive part

C. Leaves bud

D. Vegetative parts

Answer: b

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60. During celll division, sometimes there will be failure of separation of sister chromatids. This event is called

A. Interference

B. Complemenatation

C. Coincidence

D. Non-disjunction

Answer: d

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61. If a cell has a chromosome number after first meiosis equal to 48. the chromosome number in the daughter cells after the completion of meiosis will be

A. 48

B. 24

C. 12

D. 36

Answer: a

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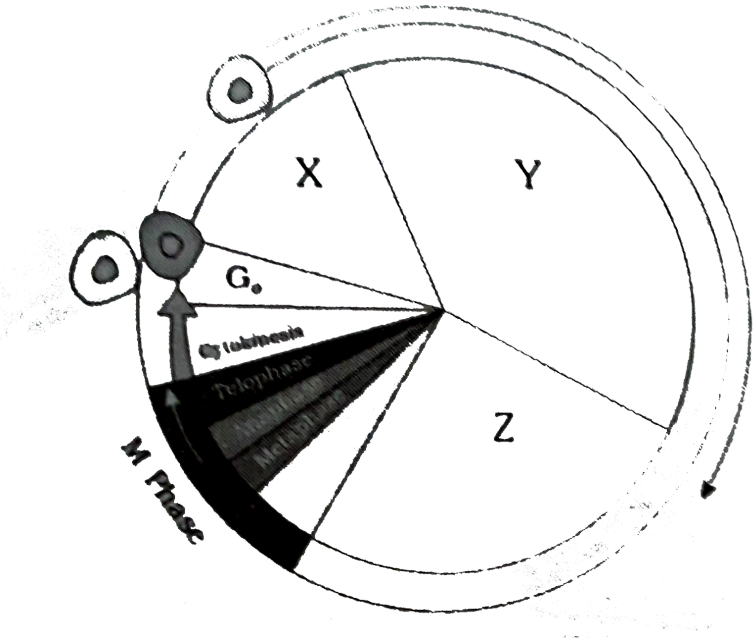
62. The given diagram is of a typical cell cycle



Identify the parts labelled as X,Y and Z

A. X-$G_1 : Y - G_2 : Z - G_0$

B. $X - G_0 : Y - S, Z - G_2$

C. $X - G_2, Y - S, Z - G_1$

D. $X - G_1, Y - S, Z - G_2$

Answer: d

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63. Chiasmata formation takes place during

A. Prophase I (Diplotene)

B. Metaphase I

C. Anaphase II

D. Telophase I

Answer: A

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64. The given figure represents various stages of cell division.

A. A-Metaphase 1,B-Prophase,C-Anaphase

B. A-Metaphase 1,B-Prophase 1,C-Anaphase 1

C. A-Metaphase, B-Prphase 1,C-Anaphase 1

D. A-Metaphase, B-Prophase 1,C-Anaphase

Answer: b

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65. During the first metaphase of meiosis the centromeres

A. Undergo division

B. Do not divide

C. Divide but do not separate

D. Are not identical

Answer: b

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66. During gamete formation, the enzyme recombinate participates during

A. Metaphase-I

B. Anaphase-II

C. Prophase-I (Pachytene)

D. Prophase -II

Answer: c

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

A. Homologous chromosomes behave independently

B. Chromatids are separated during anaphase

C. Homologous chromosomes pair and from bivalents

D. Homologous chromosomes crossover

Answer: b

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68. The protein for spindle fibre is

A. Myosi

B. Actin

C. Troponin

D. Myoglobin

Answer: a

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69. 56 cells are produced in meiosis in which

A. first division is reductional

B. First division is equational

C. Second division is reductional

D. None of these

Answer: a

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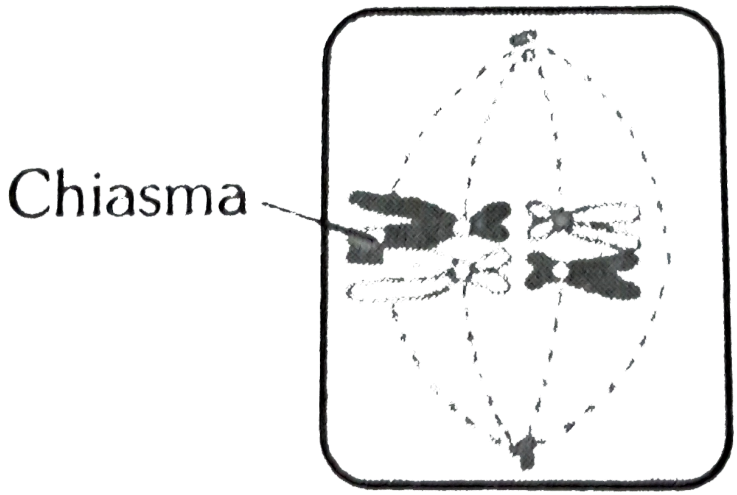
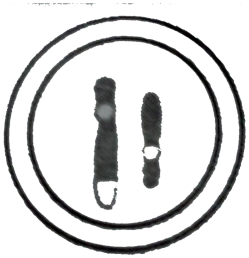
70. The given diagram of a cell undergoing meiosis, indicated that crossing over occurs only at the chiasma

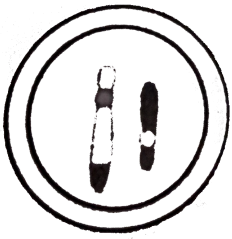


Which of the following gametes will NOT be formed from this cell

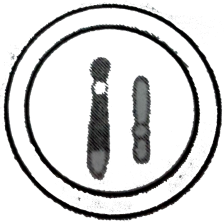
A.



B.



C.



(d)

D.

Answer: A

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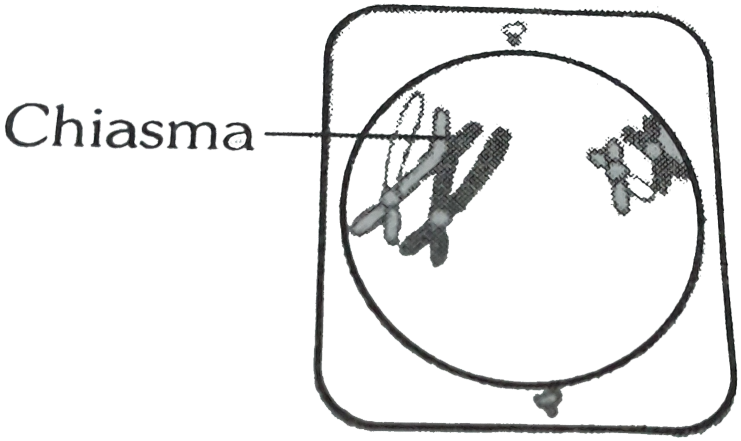
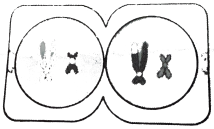
71. The given diagram shows a cell undergoing meiosis

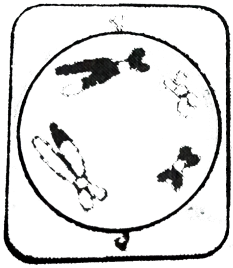


Which diagram shows the next stage in the process

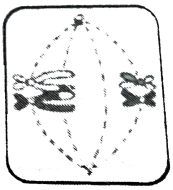
(a)



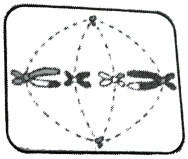
A.

B. 

(c)

C. 

(d)

D. 

Answer: C

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72. The process of mitosis is divided into 4 phases Identify the correct order in which these phases appear in mitosis

A. Anaphase, metaphase, telophase and prophase

B. Telophase, anphase, metaphase, and prophase

C. Metaphase, prophase, anaphase and telophase

D. Prophase, metaphase, anaphase and telophase

Answer: d

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73. Meiosis and mitosis differ from each other because in meiosis

A. The four nuclei formed are not similar to parental ones

B. Homologous chromosomes pair are exchange parts

C. Number of chromosomes gets halved

D. All the above

Answer: d

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74. Cell division is initiated by

A. Centrosome

B. Centriole

C. Centromere

D. Chromomere

Answer: a

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75. "Endomitosis" refers to

A. Division of nucleus without chromosomal division

B. Division of chromosome without nuclear division

C. Division of cytoplasm

D. None of the above

Answer: b

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76. 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. Leptotene

B. Zygotene

C. Diplotene

D. Pachytene

Answer: B

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

A. Kinetochores

B. Centromere

C. Satellites

D. Secondary constrictions

Answer: a

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78. The process of mitosis can be studied in

A. Onion root tip

B. Garlic root tip

C. Tendril tip

D. All of the above

Answer: d

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79. Exchange of chromosome segments between maternal and paternal chromatids during meiosis is called.

Or

In meiosis the daughter cellsa re not similar to that of parent because of

A. Linkage

B. Dominance

C. Crossin over

D. DNA multiplication

Answer: c

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80. Mitotic stages are not observed in

A. Cosmarium

B. E coli

C. Saccharomyces

D. Chlorella

Answer: b

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81. Period of active mitosis ranges from

A. 10 minutes to a few hours

B. A few hours to a one day

C. One day to a week

D. Less than a minute

Answer: a

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82. Which is synthesized in G_1 phase?

A. DNA polymerase

B. Histones

C. Nucleolar DNA

D. Tubulin protein

Answer: A

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83. How many meiotic divisions will be necessary to produce two hundred pollen grains

A. 50

B. 100

C. 199

D. 150

Answer: a

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84. Prophase of reduction division is divided into number of stages. The correct chronological sequence is

A. Leptotenej-Pachytne-zygotene-diplotene-diakinesis

B. Leptotene-diplotene-pachytene-zygotene-diakinesis

C. Leptotene-zygotene-diplotene-pachytene-diakinesis

D. Leptotene-zygotene-pacytene-diplotene-diakinesis

Answer: d

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85. What is the correct sequence of the steps given here? Also work out the process depicted in the steps

(i) Homologous chromosomes move forward opposite poles of the cell: chromatids do not separte

II. Chromosomes gather together at the two poles of the cell and the nuclear membranes reform

III. Homologous chromosomes pair and exchange segments

IV. Homologous chromosomes allign on a central plate

V. the haploid cells separte completely .

A. The correct sequence is $III \rightarrow IV \rightarrow I \rightarrow II \rightarrow V$ and the process is meiosis-I

B. The correct sequence is $II \rightarrow I \rightarrow V \rightarrow IV \rightarrow III$ and the process is mitosis

C. The correct sequence is $IV \rightarrow I \rightarrow III \rightarrow II \rightarrow V$ and the process is meiosis-I

D. The correct sequence is $II \rightarrow V \rightarrow IV \rightarrow I \rightarrow II$ and the process is mitosis

Answer: a

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86. Which one is the correct sequence of a cell cycle?

A. G_1, G_2, S and M

B. S, G_1, G_2, and M

C. G_1, S, G_2 and M

D. G_2, S, G_1, and M

Answer: C

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87. If we ignore the effect of crossing over, how many different haploid cells arise by meiosis in a diploid cell having 2n=12

A. 8

B. 16

C. 32

D. 64

Answer: d

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88. In which of the following stage, the chromosome is thin and like long thread

A. Leptotene

B. Zygotene

C. Pachytene

D. Diakinesis

Answer: A

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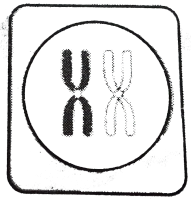
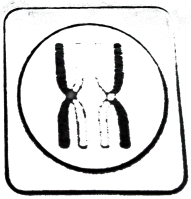
89. Which figure correctly represents a pair of homologous chromosomes at the start of meiosis

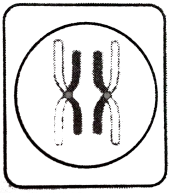
A. (a)

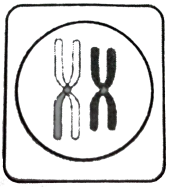


B. (b)



C. (c)



D. (d) 

Answer: a

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90. Diploid cell have

A. Two chromosomes

B. One set of chromosomes

C. Two pairs of homologous chromosomes

D. Two sets of chromosomes.

Answer: D

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91. Calcium dependent kinasses can control

A. Cell cycle activities

B. DNA replication

C. Cell surface receptions

D. Membrane structure

Answer: a

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92. G_2 phase of mitosis takes

A. 50% time of cell cycle

B. 25 to 33% time of cell cycle

C. 12 to 16% time of cell cycle

D. 4% time of cell cycle

Answer: c

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93. Study the following lists

List-I		List-II	
(A)	Initiation of spindle fibres	(I)	Anaphase-I
(B)	Synthesis of RNA and protein	(II)	Zygotene
(C)	Action of endonuclease	(III)	G_1 phase
(D)	Movement of sister chromatids towards opposite poles	(IV)	Pachytene
		(V)	Anaphase-II

The correct match is

A. $\begin{matrix} A & B & C & D \\ II & III & IV & V \end{matrix}$

B. $\begin{matrix} A & B & C & D \\ III & II & I & V \end{matrix}$

C. $\begin{matrix} A & B & C & D \\ I & III & V & IV \end{matrix}$

D. $\begin{matrix} A & B & C & D \\ I & III & V & IV \end{matrix}$

Answer: a

Watch Video Solution

94. What is not seen during mitosis in somatic cells

A. Spindle fibres

B. Chromosome movement

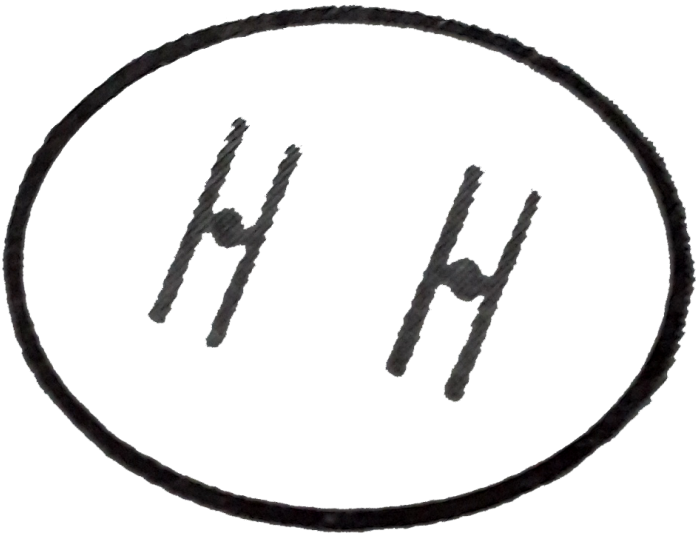
C. Disappearance of nucleolus

D. Synapsis

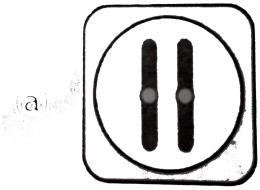
Answer: d

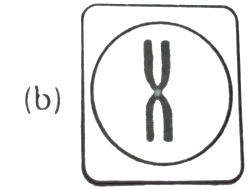
Watch Video Solution

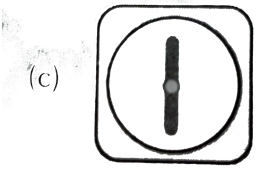
95. The given figure shows a cell undergoing in Prophase I

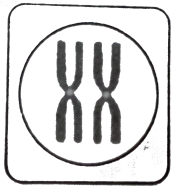


Keeping the diagram is correct for one of the cell at the end of meiosis

A. 

B. 

C. 

D. (d) 

Answer: c

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96. The microtubules from opposite poles of the spindle get attached to the kinetochores of sister chromatids in

Or

At what phase of meiosis are there two cells, each with sister chromatids aligned at the spindle equator

A. Prophase II

B. Metaphase II

C. Anaphase II

D. None of these

Answer: b

Watch Video Solution

97. Prophase is longer in

A. Mitosis occurs after G_0 phase

B. Meiosis

C. Equal in both

D. Amitosis

Answer: b

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98. Which of the following chracters is related with telophase

A. Formation of nuclear membrane

B. Formation of nucleolus

C. Elongation of chromosome

D. Formation of two daughter nuclei

Answer: d

Watch Video Solution

99. In which stage of cell division chromosomes are most condensed

A. Prophase

B. Metaphase

C. Anaphase

D. Telophase

Answer: b

Watch Video Solution

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

A. Compaction of chromosomes

B. Formation of synaptonemal complexes

C. Formation of recombinational nodules

D. Disolution of synapotenemal complex

Answer: d

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101. The term "mitosis" was proposed by

A. Flemming

B. Farmer

C. Moore

D. Boveri

Answer: a

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102. Root cells of wheat has 6n=42 chromosomes . Which one of the following is the basic chromosome number for wheat ?

A. 42

B. 21

C. 7

D. 14

Answer: c

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103. Which of the folliwng structure will not be common to mitotic cell of a higher plant

A. Cell plate

B. Centromere

C. Centriole

D. Spindle fibre

Answer: c

Watch Video Solution

104. How many mitotic divisions are needed for a single cell to make 128cells

A. 7

B. 14

C. 28

D. 32

Answer: a

Watch Video Solution

105. Which one of the following forms the spindle apparatus during cell division

A. Chromosome

B. Centrosome

C. Ribosome

D. Chondriosome

Answer: b

Watch Video Solution

106. During cell division in apical meristem nuclear membrane reappears in

A. Interphase

B. Telophase

C. Prophase

D. s phase

Answer: b

Watch Video Solution

107. Cell in G_0 phase of cell cycle

A. Exit cell cycle

B. Enter cell cycle

C. Suspend cell cycle

D. Terminate cell cycle

Answer: c

Watch Video Solution

108. How many reduction division are necessary for the formation of 200 grains of wheat

A. 250

B. 150

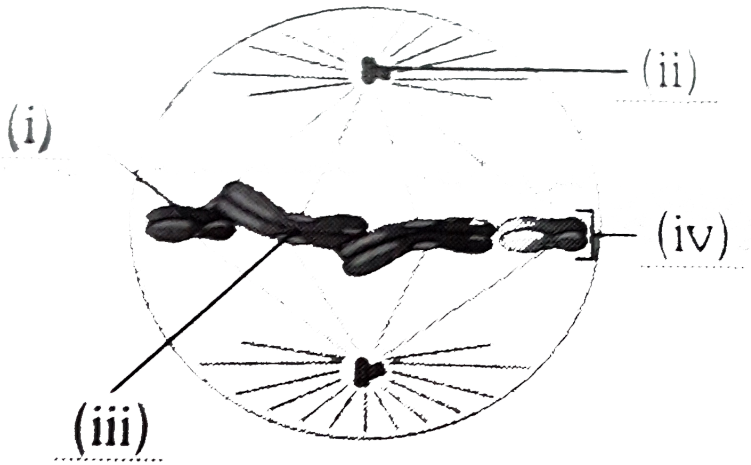
C. 200

D. 360

Answer: a

View Text Solution

109. See the following figure and identify marked lined i,ii iii and iv



A. i Chromosome, ii Centromere, iii Centriole, iv Chromatid

B. i. Chromatid, ii Centromere, iii Centriole, iv Chromosome

C. i. chromosome, ii Centriole, iii Centromere, iv Chromatid

D. i. Chromatid, ii Centriole, iii Centromere, iv Chromosome.

Answer: d

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110. The non-sister chromatids twist around and exchange segmetns with each other during or in meiosis crossing over is initiated at

A. Diplotene

B. Diakinesis

C. Leptotene

D. Pachytene

Answer: d

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111. During mitosis chromosomes go to their poles in a stage called

Or

The shape of chromosome is clearly visible at

A. Prophase

B. Metaphase

C. Anaphase

D. Telophase

Answer: c

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112. 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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113. DNA replication takes place in

Or

DNA molecule of each chromosome become double in

Or

DNA and histone proteins are synthesized during the following phase of cell cycle.

A. G_1 phase

B. G_2 phase

C. S phase

D. Mitotic phase

Answer: c

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114. During the meiotic division the

A. Homologous chromosomes are separated

B. The linkage is disturbed

C. The homologous chromosomes do not segregate

D. All of the above.

Answer: a

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115. The number of chromosmes after 1 phase of meiotic division in reduction division .

A. Remain unchanged

B. Become doubled

C. Become halved

D. None of the above

Answer: C

Watch Video Solution

116. Meiosis can be observed in

A. Root tips

B. Cambium

C. Anther (PMC)

D. Pollen grains

Answer: c

Watch Video Solution

117. Select the correct mathc

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 and B

B. C and D

C. C and E

D. A,C and E

Answer: a

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118. 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. One

Answer: d

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119. A bivalent of meiosis i consists of

A. Four chromatids and four centromeres

B. Two chromatids and two centromeres

C. Two chromatids and one cetroemre

D. Four chromatids and two centroemres

Answer: e

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120. 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

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121. Cell plate is referred as

A. Germplast

B. Idioblast

C. Phragmoplast

D. Middle lamella

Answer: C

Watch Video Solution

122. In which phase proteins for spindle fibre formation are synthesized.

A. G_1 phase

B. G_2 phase

C. S phase

D. Anaphase

Answer: a

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123. Karyokinesis differ from cytokinesis because it involves

A. Division of cytoplasm

B. Division of the nucleus and cytoplasm

C. Division of the nucelus

D. Division of the cell

Answer: C

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124. Differentiated celll areests at which stage

A. G_1

B. H_2

C. G_0 and G_1

D. U

Answer: c

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125. The nuclear membrane disappears in

A. Metaphase

B. Early prophase

C. Late prophase

D. Anaphase

Answer: c

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126. Chromonemata start associating into bivalent chromosomes

A. Zygotene

B. Leptotene

C. Pachytene

D. Diplotene

Answer: a

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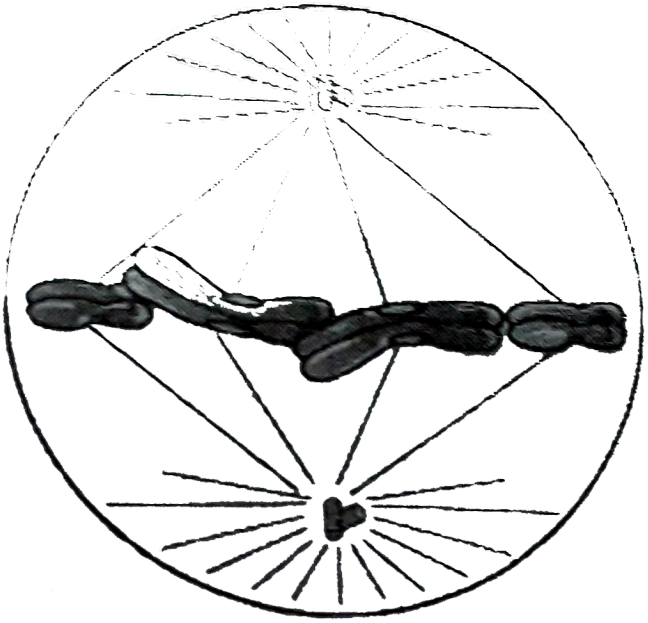
127. Select the correct option with respect to mitosis



A. Chromosomes move to the spindle equator and get alingned along equatorial plate in metaphase

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

C. Chromatids start moving towards opposite poles in telophase

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

Answer: a

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128. Which one of the following precedes re-formation of the nuclear envelope during M phase of the cell cycle.

A. Formation of the contractile ring, and formation of the phragmoplast

B. Formation of the contractile ring, and transcription from chromosomes

C. Deconderisation of chromosomes , and reassembly of the nuclear lamina

D. Transcription from chromosomes, and ressembly of the nuclear lamina

Answer: c

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129. In an organism, if the normal diploid number of chromosmes is 8, how many chromatids are present in each daughter cell at the end of meiosis I

A. 2

B. 4

C. 8

D. 16

Answer: c

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130. In eukaryotic cell cycle, cell fusion experimetns show that

A. When an S-phase cell is fused with a G_1. $Phasecell$G_(1)-`phase cell is timulated to snthesize DNA

B. When an S-phase cell is fused with a $G_2 -$ phase cell, DNA synthesis is induced in G_2-phase cell.

C. When a G_1 phase cell is fused with a G_2-phase cell. DNA synthesis is induced in both G_1 and G_2 phase cells

D. When a G_1-phase cell is fused with an M-phase cell both G_1 and M phase cells are stimulated to synthesise DNA.

Answer: b

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131. The points at which crossing over has taken place between homologous chromosomes are called

Or

Visible expression of the genetic phenomenon of crossing over is called

A. Protein axis

B. Synaptonemal complexes

C. Chiasmata

D. Centromeres split and chromatids separate

Answer: c

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132. How many meiotic division would be required to produce 101 female gametophytes in an anglosperm

A. 101

B. 26

C. 127

D. None of these

Answer: a

Watch Video Solution

133. Mitotic spindle have main protein

A. Tubulin

B. Myosin

C. Tropomyocin

D. Dynein

Answer: a

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134. Cells of certain species of animals have six pairs of chromosmes. How many molecules of DNA will remains in a nucleus of these animals during G_2 phase

A. 12

B. 48

C. 6

D. 24

Answer: d

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135. Which of the following is not true for meiosis

A. Production of genetic variability

B. Maintaining constancy of chromosome number during sexual reproduction

C. Recution of chromosome number to one half

D. Production of diploid cell

Answer: d

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136. Which of the following is used as the mitotic spindle poison

A. Ca^{++}

B. Mg^{++}

C. Tubullin

D. Colchicine

Answer: d

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137. Progression of cell cycle is regulated by the concentration of which type of molecule

A. Centrosomes

B. Cyclin-dependent kinases

C. Cyclins

D. Microtubules

Answer: b

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138. When cell has stalled DNA replication form , which checkpoint should be predominantly activated

A. Both G_2 / M and M

B. G_1 / s

C. G_2 / M

D. M

Answer: B

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139. Match the stages of meiosis in Column I to their characteristic features in Column II and select the correct option using the codes given below

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

A. $\begin{matrix} A & B & C & D \\ iv & iii & ii & i \end{matrix}$

B. $\begin{matrix} A & B & C & D \\ iii & iv & ii & i \end{matrix}$

C. $\begin{matrix} A & B & C & D \\ i & iv & ii & iii \end{matrix}$

D. $\begin{matrix} A & B & C & D \\ ii & iv & iii & i \end{matrix}$

Answer: B

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140. 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. Chromosmes 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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141. Which of the following option gives the correct sequence of events during mitosis

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: B

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142. 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 macromolecuels

D. Cell stops growing.

Answer: b

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143. At which stage of meiosis does the genetic constituion of gametes is finally decided

A. Metaphase I

B. Anaphase II

C. Metaphase II

D. Anaphase I

Answer: d

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144. Meiosis occurs in organisms during

A. Sexual reproduction

B. Vegetative reproduction

C. Both sexual and vegatative reproduction

D. None of these

Answer: a

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145. During anaphase -I of meiosis

A. Homologous chromosomes separate

B. Non-homologous autosomes separate

C. Sister chromatids separate

D. Non-sister chromatids separate

Answer: a

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146. Mitosis is characterised by

A. Reduction division

B. Equal division

C. Both reduction and equal division

D. None of the above

Answer: a

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147. Identify the wrong statement about meiosis

A. Pairing of homologus chromosomes

B. Four haploid cells are formed

C. At the end of meosis the number of chromosomes are reduced to half

D. Two cycle of DNA replication occurs

Answer: D

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

A. G 1

B. G 2

C. G o

D. S phase

Answer: c

Watch Video Solution

149. Which of the evetns listed below is not observed ruing mitosis

A. Chromatin comdensation

B. Movement of centrioles to opposite poles

C. Appearance of chromosomes with two chromatids joined together at the centroemre.

D. Crossing over

Answer: d

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150. 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 and B only

Answer: a

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151. The number of DNA in chromosome at G_2 stage of cell cycle

A. One

B. Two chromatids and two centromeres

C. Four time the number of chromosomes and twice the amount of DNA

D. Eight

Answer: b

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152. While working in a lab, a student forgot to add colchicine while karyotyping through blood culture technique. Then what will happen

A. Mitosis will be arrested at metaphase

B. Chromosomal division will continue and each chromosme will have four arms

C. Chromosomal divison will continue

D. Mitosis will be arrested at telophase

Answer: c

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153. Which one of the following pairs is correctly matched

A. Anaphase I – Homologous chromosomes are separated

B.

Metaphase I – Pairing of maternal and paternal homologous chron

C.

Interphase – A nuclear envelope encloses each haploid set of chrom

D. Prophase I – Non-homologous chromosomes are separated

Answer: a

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154. Chromosome start at which stage of mitosis

A. Early metaphase

B. Late metaphase

C. Early anaphase

D. Early telophase

Answer: c

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155. The number of chromatids in a chromosome at anaphase is

A. 2 in mitosis and 1 in meiosis

B. 1 in mitosis and 2 in meiosis

C. 2 each in mitosis and meiosis

D. 2 in mitosis and 4 in meiosis

Answer: b

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156. The major event that occurs during the anaphase of mitosis. Which bring about the equal distribution of chromosomes, is

A. Replication of the genetic material

B. Splitting of the chromatids

C. Spliting mitosis and meiosis

D. Condensation of the chromatin

Answer: c

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157. In the somatic cell cycle.

A. A shot interphase is followed by a long mitotic phase

B. G_2 phase follows mitotic phase

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

D. DNA replication takes place is S-phase

Answer: d

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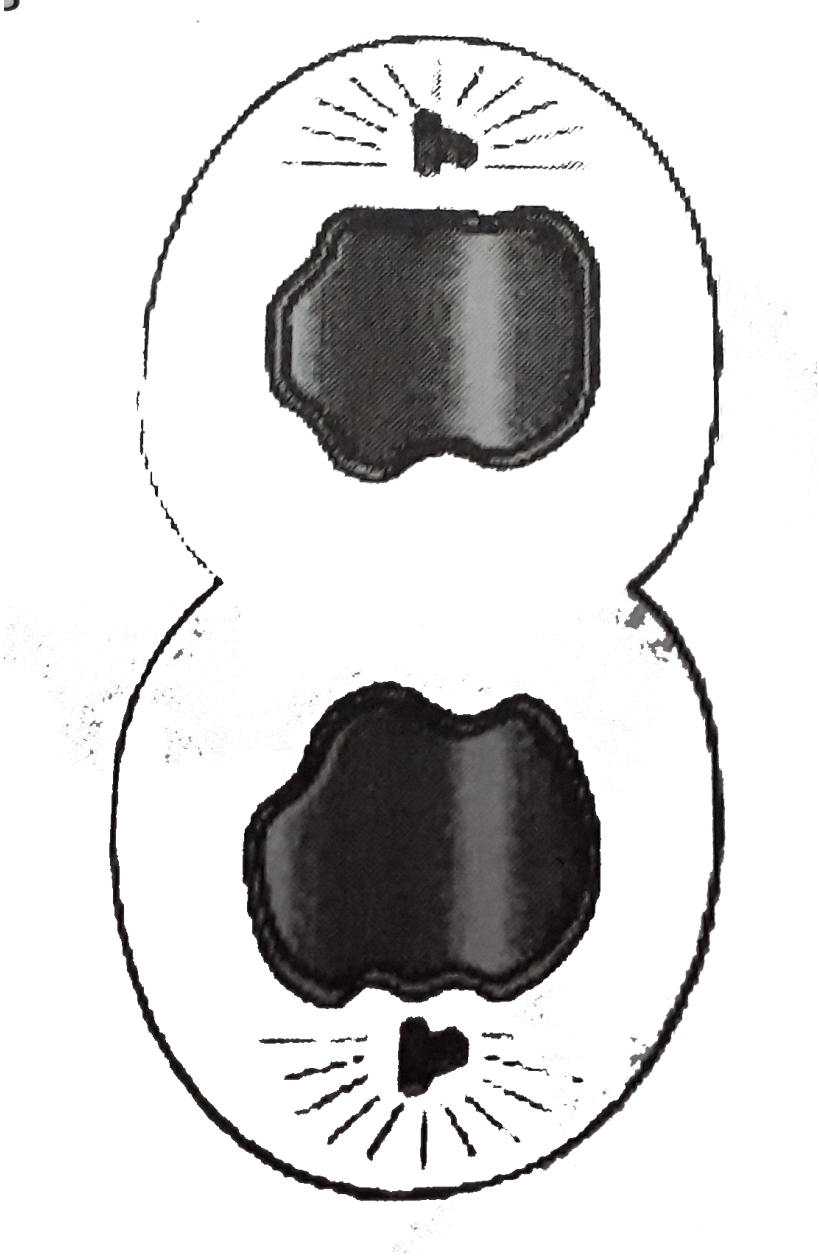
158. A stage in cell division is shown in the figure. Select the answer which gives correct identification of the stage with its chracteristics



A.

Telophase Endoplasmic reticulum and nucleolus no reformed yet

B. Telophase Nuclear envelop reforms, Golgi complex reforms

C.

Late anaphase Chromosomes move away form equatorial plate, Gol

D.

Cytokinesis Cell plate formed, mitochondria distributed between tw

Answer: b

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159. Meiosis takes place in

A. Megapore

B. Meiocyte

C. Conidia

D. Gemmule

Answer: b

Watch Video Solution

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

A. Axoneme

B. Equatorial plate

C. Kinetochore

D. Bivalent

Answer: d

Watch Video Solution

161. DNA replication in bacteria occurs

A. During S phase

B. Within nucleolus

C. Prior to fission

D. Just before transcription

Answer: c

Watch Video Solution

162. Assertion: Synthesis of DNA takes place in the S. phase of interphase.

Reason: Every chromosme, during metaphase, has two chromatids.

A. If both assertion & Reason are True & the Reason is a corrrect explanation of the Asserion.

B. If both Assertion & Reason are True but Reason is not correct explanation of the Assertion.

C. If Assertion is Trie but the Reason is False.

D. If both Assertion & Reason are false

Answer: a

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163. 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 & Reason are True & the Reason is a corrrect explanation of the Asserion.

B. If both Assertion & Reason are True but Reason is not correct explanation of the Assertion.

C. If Assertion is Trie but the Reason is False.

D. If both Assertion & Reason are false

Answer: b

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164. Assertion: Karyokinesis occurs in M-phase

Reason: Cell division stops in M-phase.

A. If both assertion & Reason are True & the Reason is a correct explanation of the Assertion.

B. If both Assertion & Reason are True but Reason is not correct explanation of the Assertion.

C. If Assertion is True but the Reason is False.

D. If both Assertion & Reason are false

Answer: D

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165. Assertion: Interphase is resting stage.

Reason: The interphase cell is metabolically inactive.

A. If both assertion & Reason are True & the Reason is a corrrect explanation of the Asserion.

B. If both Assertion & Reason are True but Reason is not correct explanation of the Assertion.

C. If Assertion is Trie but the Reason is False.

D. If both Assertion & Reason are false

Answer: c

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166. Assertion: DNA synthesis occurs in G_1 and G_2 periods of cell cycle.

Reason: During G_1 and G_2 phase the DNA contents become double.

A. If both assertion & Reason are True & the Reason is a corrrect explanation of the Asserion.

B. If both Assertion & Reason are True but Reason is not correct explanation of the Assertion.

C. If Assertion is Trie but the Reason is False.

D. If both Assertion & Reason are false

Answer: d

Watch Video Solution

167. Assertion: Mitosis maintains the genetic simllarity of somatic cells.

Reason: Chromosomes do not undergo crossing over.

A. If both assertion & Reason are True & the Reason is a corrrect explanation of the Asserion.

B. If both Assertion & Reason are True but Reason is not correct explanation of the Assertion.

C. If Assertion is Trie but the Reason is False.

D. If both Assertion & Reason are false

Answer: a

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168. Assertion: Chlasmata is formed during diplotene.

Reason: Chiasmata are formed due to deposition of nucleoproteins.

A. If both assertion & Reason are True & the Reason is a corrrect explanation of the Asserion.

B. If both Assertion & Reason are True but Reason is not correct explanation of the Assertion.

C. If Assertion is Trie but the Reason is False.

D. If both Assertion & Reason are false

Answer: c

Watch Video Solution

169. Assertion: During zygotene, chromosmes show bivalent stage.

Reason: Bivalent is half the number of chromosomes

A. If both assertion & Reason are True & the Reason is a corrrect explanation of the Asserion.

B. If both Assertion & Reason are True but Reason is not correct explanation of the Assertion.

C. If Assertion is Trie but the Reason is False.

D. If both Assertion & Reason are false

Answer: b

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170. Assertion: Miosis takes place in pollen mother cells.

Reason: Each pollen mother cell produce 4 haploid pollen grains.

A. If both assertion & Reason are True & the Reason is a corrrect explanation of the Asserion.

B. If both Assertion & Reason are True but Reason is not correct explanation of the Assertion.

C. If Assertion is Trie but the Reason is False.

D. If both Assertion & Reason are false

Answer: a

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

Reason: Synapsis occurs during zygotene of meiosis.

A. If both assertion & Reason are True & the Reason is a corrrect explanation of the Asserion.

B. If both Assertion & Reason are True but Reason is not correct explanation of the Assertion.

C. If Assertion is Trie but the Reason is False.

D. If both Assertion & Reason are false

Answer: a

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172. Bivalents in meiosis are

A. Tetrad

B. Pairs of non-homologous chromosomes

C. Pairs of several chromatids

D. Pairs of homozygous chromosomes

Answer: a

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173. Which type of cell division occurs in the gonads

A. Mitosis only

B. Meiosis

C. Both a and b

D. Amitosis and meiosis

Answer: c

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174. The spindle fibre contracts in

A. Metaphase I

B. Anaphse II

C. Prophase II in meiosis

D. Telophase II

Answer: b

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175. If there were 4 chromosomes present during prophase, how many chromosomes are there in each cell at the end of anaphase it.

A. 16

B. 4

C. 2

D. 8

Answer: c

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176. Which is not characteristic of meiosis

A. Two stages of DNA replication, first before meiosis I and second before crossing cover

B. Sister chromatids separate during anaphase II

C. Nuclear membrane disappears towards end of prophase

D.

Answer: a

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177. Cell division in blue-green type is more or less similar to that in:

A. Red algae

B. Green algae

C. Brown algae

D. Bacteria

Answer: d

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178. Which out of the following is not a divisional stage

A. Telophase

B. Interphase II

C. Metaphase

D. Prophase

Answer: B

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179. Crossing over is advantageous because it brings about

A. Variation

B. Linkgae

C. Inbreeding

D. Stability

Answer: a

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180. Cellular structure always disappears during mitosis is

A. Cell wall

B. Cell membrane

C. Nucleorolus

D. All th above

Answer: c

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181. Anastral mitosis is found in

A. Animals

B. Higher plants

C. Bacteria

D. Gyanobacteria

Answer: b

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