

Yakeen NEET 2.0 2026

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Cell Cycle and Cell Division

DPP: 4

Q1 Which of the following is not a significance of Mitosis?

- (A) Repair
- (B) Growth
- (C) Maintenance of nucleocytoplasmic ratio
- (D) Maintenance of chromosome number generation after generation

Q2 Mitosis is seen in -

- (A) Apical meristem
- (B) Lateral meristem
- (C) Intercalary meristem
- (D) All meristematic cells

Q3 Best material for studying mitosis in laboratory is

- (A) leaf tip
- (B) flower
- (C) root tip
- (D) gamete

Q4 All are correct w.r.t. significance of mitosis except

- (A) Growth of an organism
- (B) To repair damage and to regenerate lost body parts
- (C) Gametogenesis in haploid plants
- (D) Maintenance of chromosome number throughout the generations

Q5 Synaptonemal complex formed at:

- (A) leptotene.
- (B) diplotene.
- (C) diakinesis.
- (D) zygotene.

Q6 Select the matched ones.

I.	S-phase	–	DNA replication
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II.	Zygotene	–	Synapsis
III.	Diplotene	–	Crossing over
IV.	Meiosis	–	both haploid and diploid cells
V.	G ₂ -phase	–	Quiescent stage

- (A) I and II
- (B) III and V
- (C) III and IV
- (D) I, III and V

Q7 The cell division that is seen in somatic line cells is called ...A..., while that seen in germ line cells is called ...B...

Fill the blanks with appropriate options.

- (A) A-meiosis, B-mitosis
- (B) A-mitosis, B-meiosis
- (C) A-amitosis, B-meiosis
- (D) A-meiosis, B-amitosis

Q8 In the following questions, a statement of assertion is followed by a statement of reason. Mark the correct choice as :

Assertion : The stage between the two meiotic divisions is called interkinesis.

Reason : Interkinesis is generally short-lived.

- (A) Both assertion and reason are true and reason is the correct explanation of assertion.
- (B) Both assertion and reason are true but reason is not the correct explanation of assertion.
- (C) Assertion is true but reason is false.
- (D) Assertion is false but reason is true.

Q9 Splitting of centromere and hence separation of chromatids occur during-

- (A) anaphase of mitosis only



- (B) anaphase of meiosis I only
(C) anaphase of meiosis II only
(D) both (A) and (C)
- Q10** An anther has 1200 pollen grains. How many PMCs must have been there to produce them?
(A) 1200 (B) 300
(C) 150 (D) 2400
- Q11** Which of the following event takes place in zygotene?
(A) Crossing over
(B) Formation of bivalents
(C) Synapsis
(D) More than one
- Q12** Which of the following process is responsible for producing genetic recombination?
(A) Synapsis
(B) Chiasmata
(C) Crossing over
(D) Exchange of segments between sister chromatids of homologous chromosomes
- Q13** In which phase terminalization of chiasmata takes place?
(A) Zygotene (B) Leptotene
(C) Diakinesis (D) Diplotene
- Q14** If a gamete has 20 chromosomes, then how many chromatids will be there in pachytene phase in its corresponding meiocyte?
(A) 20 (B) 10
(C) 40 (D) 80
- Q15** A bivalent contains
(A) Two homologous chromosomes
(B) 4 chromatids
(C) 2 centromeres
(D) All of the above
- Q16**

Prophase I is relatively..... as compared to prophase of mitosis.

- (A) Simple
(B) Shorter
(C) Longer
(D) Longer and complex

- Q17** At which of the following stages, the chromosomes appear single, thin and thread like?
(A) Leptotene (B) Zygotene
(C) Pachytene (D) Diplotene
- Q18** Identify the different stages with respect to the below given features and select the correct option.
(i) Thin thread-like chromosomes with a beaded appearance
(ii) Appearance of recombination nodules
(iii) Formation of bivalents/tetrads
(iv) Terminalization of chiasmata
(v) Appearance of chiasmata
(A) (i)- Leptotene, (ii)- Zygotene, (iii)- Pachytene, (iv)- Diplotene, (v)- Diakinesis
(B) (i)- Leptotene, (ii)- Zygotene, (iii)- Pachytene, (iv)- Diakinesis, (v)- Diplotene
(C) (i)- Leptotene, (ii)- Pachytene, (iii)- Zygotene, (iv)- Diakinesis, (v)- Diplotene
(D) (i)- Leptotene, (ii)- Pachytene, (iii)- Diplotene, (iv)- Zygotene, (v)- Diakinesis
- Q19** Crossing over takes place between which chromatids and in which stage of the cell cycle?
(A) Non-sister chromatids of non-homologous chromosomes at Zygotene stage of prophase I.
(B) Non-sister chromatids of homologous chromosomes at Pachytene stage of prophase I.
(C) Non-sister chromatids of homologous chromosomes at Zygotene stage of prophase



I.

(D) Non-sister chromatids of non-homologous chromosomes at Pachytene stage of prophase I.

Q20 The enzyme recombinase is required at which stage of meiosis?

- (A) Pachytene (B) Zygotene
(C) Diplotene (D) Diakinesis

Q21 Identify the meiotic stage in which

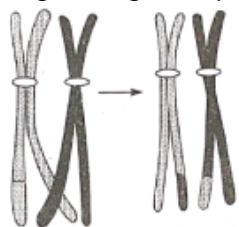
(1) The chromosome becomes gradually visible with compaction of chromatin

(2) The complex formed by a pair of synapsed homologous chromosomes

(3) The four chromatids of each bivalent chromosome distinct and clearly appear as tetrad

- (A) 1- Leptotene, 2- Pachytene, 3- Diplotene
(B) 1- Leptotene, 2- Zygotene, 3- Pachytene
(C) 1- Zygotene, 2- Pachytene, 3- Diplotene
(D) 1- Zygotene, 2- Diplotene, 3- Pachytene

Q22 The given figure represents:



- (A) Prophase I
(B) Prophase II
(C) Prophase of mitosis
(D) Prophase and metaphase of mitosis

Q23 Mark the incorrect statement -

- (A) In leptotene, the chromosomes become gradually visible under the light microscope.
(B) Bivalents become clearly visible in Zygotene.
(C) Prophase I is typically longer and more complex as compared to prophase of mitosis.
(D) Number of tetrads are equal to the number of bivalents.

(D) Number of tetrads are equal to the number of bivalents.

Q24 Chromosome of Homologous pair start to move away in _____ phase of meiosis.

- (A) Telophase (B) Zygotene
(C) Pachytene (D) Diplotene

Q25 During meiosis I, chromosome number

- (A) is reduced to half
(B) doubles up
(C) remains the same
(D) either (A) or (B)

Q26 Nucleolus disappears and spindle assembly occurs in _____ phase of meiosis I.

- (A) Leptotene (B) Zygotene
(C) Diakinesis (D) Diplotene

Q27 How many metaphasic plates are formed in metaphase I?

- (A) 1 (B) 2
(C) 4 (D) 0

Q28 Which cell division is called equational division?

- (A) Mitosis
(B) Reductional division
(C) Somatic division
(D) More than one

Q29 Meiosis consists of:

- (A) Two cell divisions with only one round of DNA replication
(B) Two cell division in which number of chromosome will remain same in each daughter cell.
(C) Two cell divisions with only two rounds of chromosome replication
(D) A single cell division with chromosome replication.

Q30



Match column I with column II and select the correct option from the given codes.

	Column I		Column II
A	Chromosomes move to equator	(i)	Pachytene
B	Centromere splits and chromatids move apart	(ii)	Zygotene
C	Pairing between homologous chromosomes	(iii)	Anaphase
D	Crossing over between homologous chromosomes	(iv)	Metaphase

- (A) A-(i), B-(ii), C-(iii), D-(iv)
 (B) A-(ii), B-(iii), C-(iv), D-(i)
 (C) A-(iv), B-(iii), C-(ii), D-(i)
 (D) A-(iii), B-(i), C-(iv), D-(ii)

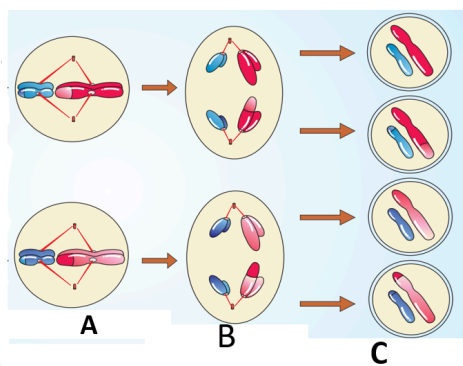
Q31 Four different steps that occur during meiosis are given in the following list:

- (i) Complete separation of chromatids
 (ii) Pairing of homologous chromosomes
 (iii) Lining up of paired chromosomes on equator
 (iv) Crossing over between chromatids

Select the correct sequential arrangement of the steps.

- (A) (ii), (iii), (iv), (i)
 (B) (iii), (ii), (iv), (i)
 (C) (ii), (iv), (iii), (i)
 (D) (iii), (i), (ii), (iv)

Q32 Identify the phase C of the cell cycle given below.



- (A) Cytokinesis II (B) Karyokinesis
 (C) Mitosis (D) Telophase II

Q33 If a gamete has 10 chromosomes then how many bivalents will be produced in its corresponding meiocyte during meiosis?

- (A) 10 (B) 20
 (C) 30 (D) 40

Q34 In which of the following phases chromosomes separate without any splitting of their centromeres?

- (A) Anaphase (B) Anaphase I
 (C) Anaphase II (D) Metaphase

Q35 The two daughter cells obtained after meiosis I are called

- (A) Meiocyte (B) Dyad
 (C) Tetrad (D) Gamete

Q36 Match column I with column II and select the option from given codes.

	Column I		Column II
(A)	Synaptonemal complex	(i)	Pachytene
(B)	Recombination nodule	(ii)	Zygotene
(C)	Terminalisation of chiasmata	(iii)	Telophase I
(D)	Formation of dyad cell	(iv)	Diakinesis

- (A) A-(ii); B-(i); C-(iv); D-(iii)
 (B) A-(i); B-(ii); C-(iv); D-(iii)
 (C) A-(iii); B-(i); C-(iv); D-(ii)
 (D) A-(ii); B-(i); C-(iii); D-(iv)

Q37 Amount of DNA and ploidy of all four cell after meiosis II is

- (A) $2c$ and n



- (B) c and n
- (C) c and $2n$
- (D) $2c$ and $2n$



Answer Key

Q1 (D)

Q2 (D)

Q3 (C)

Q4 (D)

Q5 (D)

Q6 (A)

Q7 (B)

Q8 (B)

Q9 (D)

Q10 (B)

Q11 (D)

Q12 (C)

Q13 (C)

Q14 (D)

Q15 (D)

Q16 (D)

Q17 (A)

Q18 (C)

Q19 (B)

Q20 (A)

Q21 (B)

Q22 (A)

Q23 (B)

Q24 (D)

Q25 (A)

Q26 (C)

Q27 (B)

Q28 (D)

Q29 (A)

Q30 (C)

Q31 (C)

Q32 (A)

Q33 (A)

Q34 (B)

Q35 (B)

Q36 (A)

Q37 (B)

