Yakeen NEET 2.0 2026

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Cell Cycle and Cell Division

DPP: 3

Q1 Read the given statements.
(I) Cell growth is a continuous process in terms of cytoplasmic increase.
(II) The interphase lasts more than 95% of the duration of the cell cycle.
(III) Karyokinesis involves the following four stages: prophase, metaphase, anaphase and telophase.
(IV) Among the several asters coming out of the centrosome, only the two asters together with spindle fibers form a mitotic apparatus.
Select the options containing **correct** statement(s);
(A) I & II
(B) I, II & III
(C) I, III & IV
(D) I, II, III & IV

Q2 Kinetochore is disc-shaped structure:
(A) present on outer surface and inner surface of centromere.
(B) present on outer surface of centriole.
(C) serve as the site of the attachment of spindle fibres.
(D) present on inner surface of centriole.

Q3 Centrosome undergo duplication during $\underline{\text{(i)}}$ of $\underline{\text{(ii)}}$, and begin to move towards opposite poles of the cell during $\underline{\text{(iii)}}$ stage of $\underline{\text{(iv)}}$.
(A) (i)-S phase, (ii)-Interphase, (iii)-Prophase, (iv)-Mitosis
(B) (i)-S phase, (ii)-Interphase,(iii)-Anaphase, (iv)-Mitosis
(C) (i)-Prophase, (ii)-Mitosis, (iii)-Metaphase, (iv)-Mitosis
(D) (i)-Prophase, (ii)-Mitosis, (iii)-Anaphase, (iv)-Mitosis

Q4 Directions : In the following questions, a statement of assertion is followed by a statement of reason. Mark the correct choice as :
Assertion : Small disc-shaped structures at the surface of the centromeres are called kinetochores.
Reason : Kinetochores serve as the sites of attachment of spindle fibres to the centromeres.
(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.

Q5 Pollen grain of plant has chromosome number 14 . What will be the chromosome number and DNA content of leaf cell of this plant during the following stages: G_1, S_1, G_2 and Metaphase?
(A)

G_1		S		G_2		Metaphase	
Chr. No.	DNA	Chr. No.	DNA	Chr. No.	DNA	Chr. No.	DNA
28	2n	14	n	14	2n	28	2n

(B)

G_1		S		G_2		Metaphase	
Chr. No.	DNA	Chr. No.	DNA	Chr. No.	DNA	Chr. No.	DNA
28	2n	28	4n	28	4n	28	4n

(C)

G_1		S		G_2		Metaphase	
Chr. No.	DNA	Chr. No.	DNA	Chr. No.	DNA	Chr. No.	DNA
28	2n	14	2n	28	2n	28	n

(D)

G_1		S		G_2		Metaphase	
Chr. No.	DNA	Chr. No.	DNA	Chr. No.	DNA	Chr. No.	DNA
28	n	28	n	14	n	14	n

Q6 .....is characterised by all the chromosomes coming to lie at the equator, with one chromatid connected by its kinetochore to spindle fibres from one pole and its sister chromatid connected by its kinetochore to spindle fibres from the opposite pole.
(A) Prophase
(B) Metaphase
(C) Anaphase
(D) Telophase

Q7 Read the following statements.
(i) In mitotic cell division chromosome number is halved.
(ii) Centromere is the point where two sister chromatids are held together.
(iii) The period between two successive mitotic divisions is known as telophase.
(iv) In G_1 phase of cell cycle cell is metabolically active.
Which of the above given statements are **correct**?
(A) (i) and (iii) only
(B) (ii) and (iii) only
(C) (i) and (iv) only
(D) (ii) and (iv) only

Q8 Which of the following is the longest phase of karyokinesis in mitosis?
(A) Prophase (B) Metaphase
(C) Anaphase (D) Telophase

Q9 Chromosomes are visible in cell during
(A) Interphase
(B) M-phase
(C) G_1 phase
(D) G_2 phase

Q10 Mark the incorrectly matched-
(A) Untangling of DNA - Prophase
(B) Chromosome with two sister chromatid first appear - Prophase
(C) Aster present - Animal cell
(D) Centriole present - plant cell

Q11 The mitotic spindle is composed of -
(A) Chromosomes (B) Chromatids
(C) Microtubules (D) Chromatin

Q12 Chromosomes decondense into diffuse chromatin -
(A) At the end of telophase
(B) At the beginning of prophase
(C) At the end of interphase
(D) At the end of metaphase

Q13 The best phase to study chromosomes is
(A) Prophase (B) Metaphase
(C) Anaphase (D) Telophase

Q14 By which phase of cell cycle condensation of chromosomes gets completed?
(A) Early prophase (B) Metaphase
(C) Anaphase (D) Telophase

Q15 In which phase of cell cycle chromatin starts to get condensed?

(A) Prophase (B) Metaphase
(C) Anaphase (D) Telophase

Q16 Equatorial plate is formed in
(A) Prophase
(B) Transition to Metaphase
(C) Anaphase
(D) Metaphase

Q17 Complete disappearance of nuclear membrane marks the beginning of:
(A) Metaphase (B) Anaphase
(C) Telophase (D) Prophase

Q18 The term mitosis in a strict sense refers to
(A) Both for nuclear and cytoplasmic division
(B) division of nucleus into two daughter nuclei
(C) division of cytoplasm of the cell
(D) division of nucleolus

Q19 Full spindle formation occurs in
(A) prophase (B) anaphase
(C) telophase (D) metaphase

Q20 In which phase of karyokinesis, ER and nucleolus disappear completely?
(A) Late Prophase (B) Metaphase
(C) Anaphase (D) Telophase

Q21 The shape of chromosomes can be observed in
(A) Prophase (B) Metaphase
(C) Anaphase (D) Telophase

Q22 In which phase of karyokinesis, the sister chromatids separate?
(A) Prophase (B) Metaphase
(C) Anaphase (D) Telophase

Q23 Mitotic spindle is mainly composed of _____ proteins.
(A) tubulin (B) myosin
(C) actin (D) actomyosin

Q24 ___ is the best stage to count the number and study the morphology of chromosomes.
(A) Prophase (B) Metaphase
(C) Anaphase (D) Telophase

Q25 Read the following statements
(i) In mitotic cell division, chromosome number is halved.
(ii) Centromere is the point where two sister chromatids are held together.
(iii) The period between two successive mitotic divisions is known as telophase.
(iv) In G_1 phase of cell cycle, proteins and RNA are synthesized.
Which of the above given statements are correct?
(A) (i) and (iii) only
(B) (ii) and (iii) only
(C) (i) and (iv) only
(D) (ii) and (iv) only

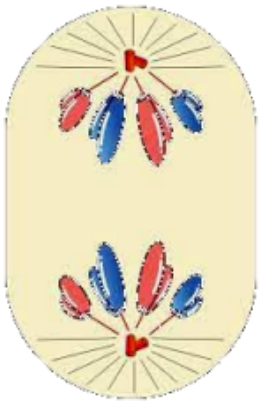
Q26 You are provided with root tips of onion in your class and are asked to count the chromosomes, then which of the following stages would you prefer to look into?
(A) Prophase (B) Metaphase
(C) Anaphase (D) Interphase

Q27 Select the incorrect match regarding mitotic cell division.

(i)	Prophase	–	Chromosomes begin uncoil
(ii)	Metaphase	–	Chromatids move apart
(iii)	Telophase	–	The nuclear membrane reappears
(iv)	Late anaphase	–	Each chromosome consists of two chromatids
(v)	Interphase	–	Chromosomes are not distinct

(A) (i), (ii), (iv) only
(B) (i) and (iii) only
(C) (ii), (iv), and (v) only
(D) (i) and (v) only

Q28 Identify the stage of the cell division and select the option that is true for it



(A) It marks the end of nuclear division
(B) Best stage to study the shape of chromosome
(C) Microtubules of spindle fibres get attached to the kinetochores
(D) Nuclear membrane reassembles around the chromosome clusters

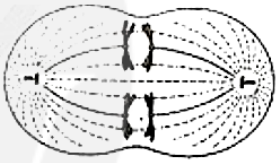
Q29 Read the following statements, and select the correct option:
Statement (1): Complete disintegration of nuclear envelope marks the start of the second phase of mitosis.
Statement (2): Metaphase chromosome is made up of two sister chromatids.
(A) Only (1) is correct
(B) Only (2) is correct
(C) Both (1) and (2) are correct
(D) Both (1) and (2) are incorrect

Q30 Initiation and complete condensation of chromosome occur respectively in
(A) Prophase and anaphase
(B) Prophase and metaphase
(C) Interphase and prophase
(D) Interphase and metaphase

Q31 Recognise the figure and find out the correct matching.

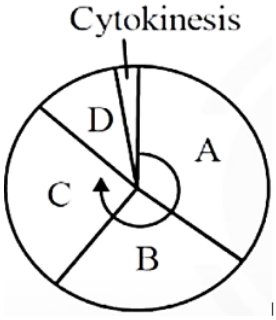
(A) a-Early prophase, b - late prophase, c - transition to metaphase
(B) b-Early prophase, c - late prophase, a - transition to metaphase
(C) c-Early prophase, a - late prophase, b - transition to metaphase
(D) b-Early prophase, a-late prophase, c— transition to metaphase

Q32 The drawing below shows a cell whose diploid chromosome number is four. This cell is in



(A) Metaphase
(B) Anaphase of mitosis
(C) First anaphase of meiosis
(D) Second anaphase of meiosis

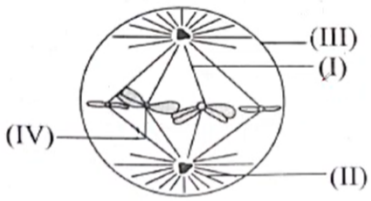
Q33 The diagram shows the cell cycle. During which phase do chromosomes condense and become visible?



(A) A (B) B

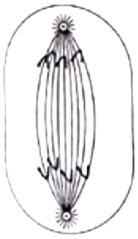
(C) C (D) D

Q34 Find out the incorrect match with respect to the given diagram.



(A) I - Kinetochore
(B) II - Aster
(C) III - Cell membrane
(D) IV - Centromere

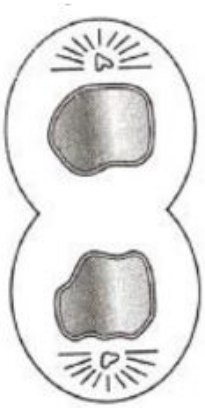
Q35 Which stage of cell division do the following figures (a) and (b) represent respectively?
(a)



(b)

(A) Telophase - Metaphase
(B) Late Anaphase - Prophase
(C) Prophase - Anaphase
(D) Metaphase - Telophase

Q36 A stage in cell division is shown in the figure. Select the answer which gives correct identification of the stage with its characteristics.



(A) Cytokinesis - Cell plate formed, mitochondria distributed between two daughter cells
(B) Telophase - Endoplasmic reticulum and nucleolus not reformed yet
(C) Telophase - Nuclear envelope reforms, Golgi complex reforms
(D) Late anaphase - Chromosomes move away from equatorial plate, Golgi complex not present

Q37 In metaphase _____ is first event.
(A) Disintegration of nuclear envelope
(B) Chromosomal condensation start
(C) Chromosomes come at metaphasic plate
(D) Spindle fibre attach on chromosome

Q38 In a diploid cell (2n=32) number of chromosomes on metaphasic plate is-
(A) 32 (B) 16
(C) 64 (D) 8

Q39 Match column I with column II and select the correct option from the given codes.

	Column I		Column II
A.	Division of nucleus	(i)	Interphase
B.	Division of cytoplasm	(ii)	Cytokinesis
C.	DNA replication	(iii)	Syncytium
D.	Karyokinesis not followed by cytokinesis	(iv)	Karyokinesis

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

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

Q40 During cell division, a cell furrow is produced during
(A) metaphase (B) telophase
(C) cytokinesis (D) anaphase

Q41 Cell plate method of cytokinesis occur in cells of-
(A) Skin cell
(B) Bone marrow
(C) Apical meristem
(D) Morula in human

Q42 Consider the following statements w.r.t cytokinesis
S-I: In an animal cell, this is achieved by the appearance of a furrow in the cell wall.
S-II: In plant-cell plate formation occurs.
(A) Only S-I is correct
(B) Only S-II is correct
(C) Both S-I and S-II are correct
(D) Both S-I and S-II are wrong

Answer Key

Q1	(D)	Q22	(C)
Q2	(C)	Q23	(A)
Q3	(B)	Q24	(B)
Q4	(B)	Q25	(D)
Q5	(B)	Q26	(B)
Q6	(B)	Q27	(A)
Q7	(D)	Q28	(B)
Q8	(A)	Q29	(C)
Q9	(B)	Q30	(B)
Q10	(D)	Q31	(A)
Q11	(C)	Q32	(C)
Q12	(A)	Q33	(D)
Q13	(B)	Q34	(A)
Q14	(B)	Q35	(B)
Q15	(A)	Q36	(C)
Q16	(D)	Q37	(A)
Q17	(A)	Q38	(A)
Q18	(A)	Q39	(B)
Q19	(D)	Q40	(C)
Q20	(A)	Q41	(C)
Q21	(C)	Q42	(B)