

DEPARTMENT OF GEOLOGICAL SCIENCES  
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Cell biology, test questions

1. Mitosis involves the following processes except, a) growth . b) increase in the shoot length. C) Increase in the girth of the tree stem. **D) scalling of the protoplasm.**
2. Which of the following of mitosis is true? A) Individual chromosomes arrange at the equator. **B) Paired chromosomes arrange at the equator.** C) Chromosomes are arranged at the poles. D) No arrangement of chromosomes occurs.
3. Process of observing mitosis involve the following, a) root is sectioned. B) root is macerated. C)Root is stained. **D) all of the above.**
4. The tissue used for observing mitosis is a) root tip of onion. B) shoot tip of onion. **C) endosperm tissue.** D) All of the above.
5. Chromosomes are strung in interphase means that a) chromosomes are attached to one another with swollen intervals. **B) chromosomes are thread like with swollen intervals.** c) chromosomes are short and thick. D) none of the above.
6. Mitotic cell division may be observed in the a) nutritive tissue surrounding the embryo inside the seeds. B) growing young root tip of beans. **C) Root hair.** d) young shoot tip.
7. During interphase a) Chromosomes are clearly visible. B) Cells are ready for division. C) Division of chromosome starts. d) chromosomes are not clearly visible.
8. Which of these is true of interphase? A) daughter cells are formed. **B) enough genetic materials are synthesized.** C) cell plate is formed. D) enough adenosine diphosphate is manufactured.
9. Production of ATP during cell division takes in a) mitosis. B) meiosis. C) prophase. D) interphase.
10. Treatment of dividing cells at -----with cyanide inhibits mitosis. a) interphase. B) prophase. C) metaphase. D) anaphase.
11. Which of these is not replicated for dividing cells? A)dictyosome. B) vacuole. C) chloroplast. D) ribosome.
12. Which of these is true of centrioles in cell division? A) Found in primitive plants. B) Found in some animal cells. C) Absent in cells of higher plants. D) They are not essential for division.

13. Which of these is not true of mitosis prophase? A) Chromosomes get shortened and fatter. B) Chromosomes are visible in microscope. C) Replicate of the chromosome is produced. d) Bivalves are produced.
14. Which of these is true of allelic chromosomes? A) Lie parallel along all their length. B) Lie parallel along most of their length. C) Poorly visible. D) None of the above.
15. Centromere is a) the center of the chromosome. B) Center of paired chromosomes. C) Point at which paired chromosomes are closely associated. D) None of the above.
16. Which of these is true in prophase ( mitosis)? A) Exact duplicate of each arm of the chromosome is produced. B) DNA are duplicated. C) Duplicated DNA are completely visible. D) Duplicated genes are visible.
17. One of the most important events in prophase is a) duplication of DNA. B) duplication of genes. C) condensation of chromosomes. D) Visibility of genes.
- 18 Which of the following is feature of prophase? A) formation of spindle apparatus. B) formation of centrioles. C) Synthesis of ATP. D) None of the above.
19. Poles and equator are positions that make their first appearance in a) Prophase. B) Metaphase. C) Anaphase. D) Telophase.
20. Prophase ends with a) Replication of the nucleolus. B) Disappearance of the cell membrane. C) Break down of nuclear membrane. D) Polarization of the cell.
21. Which of these is not true of the structures that hold chromosomes at point of close association. They are called a) Spindle fibres. B) Are proteins. C) Proteins microtubules. D) Centromere.
22. During metaphase, a) Chromosomes migrate to the poles. B) Chromosomes arrange themselves on the spindle. C) Chromosomes migrate to the equator of the cell. D) Chromosomes move to the centrioles.
23. Which of this is not true of the structures holding chromosomes in metaphase stage. a) They are made up of proteins. b) There is one type only. C) They cover only half of the cell. D) None of the above.
24. Apparatus holding chromosomes in metaphase are attached at the a) centromere. B) Chromatids. C) Centrosome. D) Centrioles.
25. Which is true of metaphase? A) centromere trails as apparatus pulls chromosome. B) Chromosomes move towards equator. C) Apparatus holding chromosomes lengthens. D) None of the above.

26. **Answer true (a) or false (b).** Mitochondria congregates around chromosomes in metaphase stage A) True. B). False.

27. **Answer true (a) or false (b).** In plant cell, telophase ends with the constriction of plasma membrane false. A) True. B). False.

28. **Answer true (a) or false (b)** Also in plant cell telophase ends with formation of cell plate. **true (a) or false (b).**

29. Growth across the middle of the dividing cells in plant cell results in a) formation of daughter cells. B) separation of daughter cells. C) replication of cells. D) none of the above.

30. **True (A) or false (B).** In root tip, plate is deposited as scattered droplets and vesicles coalesce.

31. Which of these is not an important feature associated with prophase in mitosis? A) Centromere formation. B) Pairing of chromosomes. C) Spindle formation. D) Exchange of genetic matter.

32. **Answer True (A) or false (B)?**

Events occurring at interphase of mitosis is similar to event occurring at interphase of meiosis TRUE (A). FALSE

33. **Answer True (A) or false (B)** All prophase of mitosis and meiosis are similar false (b). TRUE (A). FALSE

34. Region where a chromosome exhibit the tightest coils are called a) Centromere. B) Centrioles. C) Centrosomes. D) None of the above.

35. Prophase of meiosis is made up of -----stages. A) 3. B) 4. C) 5. D)6

36. Which of the following is true, (A). Prophase mitosis is made up of five stages. (B). Prophase mitosis is made up of four stages. (C). Prophase mitosis is made up of one stage (D). Prophase mitosis is made up of two stages.

37. Which of the following is true (A). Leplotene stage is found in prophase mitosis (B). In leplotene stage nucleolus dissolved (C). No centromere is found in leplotene stage (D). Centrioles have taken up the position in the leplotene stage.

38. Which of the following is true of zygotene stage, (A). Each chromosome split out longitudinally to become four (B). Maternal and paternal chromosomes paired up (C). Centromere are formed (D). Chromosomes begin to coil up.

39. Bivalves is formed in (A). Leplotene (B). Zygotene (C). Pachytene (D). Deplotene.

40. Synapsis is formed in (A). Deplotene (B). Diakinesis (C). Leplotene (D). Zygotene
41. The exchange of genetic material is only possible at (A). The chiasmata points (B). Centromere (C). Spindles fibers (D). None of the above.
42. Bivalves are arranged at the equator in the (A). Mitosis cells division (B). Meiosis cell division (C). Metaphase 1 of meiosis (D). Metaphase cell division.
43. The mixture of characters taken by offsprings is only possible in the cell division. (A). Meiosis (B). Deplotene (C). Pachytene (D). Mitosis
44. At the end of meiotic division II (A). 2-cell are formed (B). 4-cell are formed (C). 8-cell are formed (D). None of the above
45. Meiotic division II is made up of (A). 2-stages (B). 4-stages (C). 3-stages (D). None of the above
46. The Process of paring homologous chromosomes is called. (A). Bivalves (B).Synapsis (C). Couple (D). Pachytene
47. Every paired Chromosome is called (A). Bivalve (B). Synapsis (C). Couple (D). Pachytene.
48. Metabolic poison may only stop cell division at (A). Prophase I (B). Prophase II (C). Interphase (D). Metaphase
49. Which of these is **NOT** true of diakinesis (A). Bivalves move to the periphery of the nucleus (B). Bivalves still attached at chiasmata (C). Nucleolus disintegrates (D). None of the above.
50. Development of strong affinity of homologous chromosomes occurs at a) Leplotene stage. B) Zygotene stage. C) Metaphase stage. D) Diakinesis.
51. The most important factor in cell division is the a) Centrioles. B) Nucleolus. C) Chromosomes. D) Spindle Fibres. E) None of the above.
52. Mitotic division ends up with a) The same amount of chromosomes. B) same amount of centrioles. C) Half the amount of chromosomes. D) Half the amount of DNA. E) None of the above.
53. Which of these is the correct sequence of mitosis? A) Prophase, Metaphase, Anaphase and Telophase. B) Prophase, Telophase, Metaphase, Anaphase, and. C) Prophase, Anaphase, Telophase, and Metaphase. D) Telophase, Prophase, Metaphase and Anaphase.
54. Resting stage is so called because, A) The cell produces carbon dioxide only. B) The cells activity is inhabited by cyanide only. C) The cell division is not active. D) none of the above. E) all of the above.

55. Which of the following is true of mitosis interphase? A) Cell has the same appearance as non-dividing cell. B) Chromosomes are visible as distinct bodies under the electron microscope. C) The chromatids arrange themselves at the poles. D) The chromosomes are normally haploid. E) None of the above.

56. The points where chromosomes are connected to each other are called a) Diplotene. B) Chiasmata. C) Prophase. D) Synapsis.

57. Genetic matter are exchanged physically in a) Prophase. B) Diplotene. C) Chiasmata points. D) None of the above.

58. Which of these is not true? A) Bivalents are absent in diakinesis. B) Chiasmata points are present in last stage of prophase. C) All of the above d) None of the above.

59. ANSWER True (A) or False (B); Diakinesis is exactly similar to late prophase 1 of mitosis.

60. ANSWER True (A) or False (B); Events in metaphase 1 of meiotic cell division is exactly similar to that of metaphase stage of mitosis cell division.

61. Bivalents are arranged at the equator in a) Metaphase stage of meiotic cell division. B) metaphase stage of mitotic cell division. C) Metaphase stage of 1<sup>st</sup> meiotic cell division. D) None of the above.

62. In anaphase first of meiotic cell division, a) Homologous chromosomes are separated. B) Individual chromosomes are separated. C) Chromosomes reaches the equator. D) None of the above.

63. In telophase first of meiotic cell division a) Chromosomes are diploid. B) Chromosomes are haploid. C) Chromosome numbers are the same as parent own. D) none of the above.

64. Halving of the chromosome number is achieved in a) Second meiotic division. B) First meiotic division. C) The whole meiotic division. D) Mitotic division.

65. The complexity of an organism is determined by a) Frequency of chiasmata. B) Size of the organism. C) Intelligence of the organism. D) None of the above.

66. ANSWER True (A) or False (B).

Metaphase state of mitosis and the second meiotic division are similar.

67. ANSWER True (A) or False (B).

Metaphase state of mitosis and first mitotic divisions are similar.

68. ANSWER True (A) or False (B).

Mitosis produces two cells while meiosis produces four haploid cells.

69. ANSWER True (A) or False (B).

Resting stage can be likened to a period of growth of the cell.

70. ANSWER True (A) or False (B).

Cellular respiration occurs when the cell have started dividing.

Keys to cell division examination questions. 1- -70

1 D; 2 B; 3 D; 4 C; 5 B; 6 C; 7 D; 8 B; 9 D; 10 A; 11 B; 12 D;  
13 D; 14 B; 15 C; 16 A; 17 C; 18 A; 19 a; 20 C; 21 D; 22 C; 23 A; 24 A;  
25 D; 26 B; 27 B; 28 A; 29 B; 30 A; 31 D; 32 A; 33 B; 34 A; 35 C; 36 C;  
37 D; 38 B; 39 B; 40 D; 41 A; 42 C; 43 B; 44 B; 45 B; 46 B; 47 A; 48 C;  
49 D; 50 B; 51 C; 52 A; 53 A; 54 C; 55 A; 56 B; 57 C; 58 C; 59 A; 60 B;  
61 C; 62 A; 63 B; 64 B; 65 C; 66 A; 67 B; 68 A; 69 A; 70 B.

1. Plastids are found in all .....plants? (a). Respiratory plants (b). Photosynthetic plant (c). Secretary tissues (d). Somatic cells (e). Guard cells.
2. One of the functions of centrosome is to form .....during cell division? (a). Spindle fibres (b). Lipo protein (c). Matrix (d). Energy (e). Endocrine gland.
3. Mitochondria are said to be absent in (a). Active cells (b). Mitotic cells (c). Senescent cell (d). Somatic cell (e). Meotic cell.
4. Nucleus, Mitochondria and chloroplast are said to be absent in (a). White blood cell (b). Sperm cell (c). Prokaryotic cells. (d). Eukaryotic cell (e). Meotic cells.
5. The mitochondria matrix contain several enzymes which include (a)(i). TCA cycle (b)(iii).  $\beta$ -oxidation of fatty acid (c)(iii). Urea cycle (d). All of the above (e). None of the above
6. Alkaloid colchicines produced by many plants of family Liliaceae inhibit microtubule assembly required for formation of? (a). Spindle fibre (b). Centrosome (c). Centrosomere (d). Lysosome (e). Meosis.
7. All the genetic information resides in.....? (a). Lysosome (b). Protoplasm (c). Nucleus (d). Mitochondria (e). Cell wall.
8. During cell division, the chromatin gets condensed and further organised in to visible thread like structures called (a). Chromosome (b). Nucleus (c). cytoplasm (d). Protoplasm (e). Cell membrane
9. Endoplasmic reticulum is the housing (a )cytoplasm (b). Mitochondria (c). Ribosome (d). Lysosome (e). Centromere.
10. Functions of cell membrane include. (a). Mechanical support (b). Definite shape (c). permeable barrier (d). Unequal distribution of  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Ca}^{2+}$  and  $\text{Cl}^-$  ions. (e). All of the above
11. Chiasma formation occurs at (a). Diakiness (b). Zygotene (c). Pachytene (d). Diplotene (e). Leptotene
12. The prokaryotic cell are usually smaller in .....?and their cytoplasm does not contain membrane bounded (a). Length (b). Size (c). Width (d). Breath (e). Shape.
13. Bacteria is an example of ....? (a). Prokaryotic cells (b). Somatic cell (c). Eukaryotic cell (d). Annual cell (e). White blood cell.

14. Hand lens is an example of .....? (a). **Simple microscope** (b). Compound microscope (c). Electron microscope (d). Stereo microscope (e). Monocular microscope.
15. The part of the microscope used to bring object in to focus is called.....? (a). Stage (b). Eye piece (c). Objective lens (d). Mirror (e). **Coarse adjustment**
16. The magnification of the object under focus is achieved by.....? (a). **Product of the eyepiece and the objective** (b). Product of the eyepiece and the mirror (c). product of the objective and the condenser (e). Product of the mirror and objective .
17. The main function of ribosomes is the synthesis of .....? (a). Glucose (b). **Protein** (c). Amino acid (d). Carbohydrate (e). Vitamin.
18. DNA replication is important because it ensured that.....? (a). Genetic materials remain permanent (b). Genetic materials are lost (c). **Genetic materials remain constant from generation to generation.** (d). Genetic materials are close (e). Genetic materials are few.
19. Cell division takes place in .....? (a). **Meristematic cells** (b). Mature cells (c). Old cells. (d). Meiotic cells (e). Mitotic cells.
20. Cilia and flagella are develop from ....? (a). **Basal bodies** (b). Golgibodies (c). Chloroplast (d). Plastids (e). Endoplasmic reticulum.