



Monthly Progressive Test

Class: IX

Subject: PCMB



Test Booklet No.: MPT03

Test Date:

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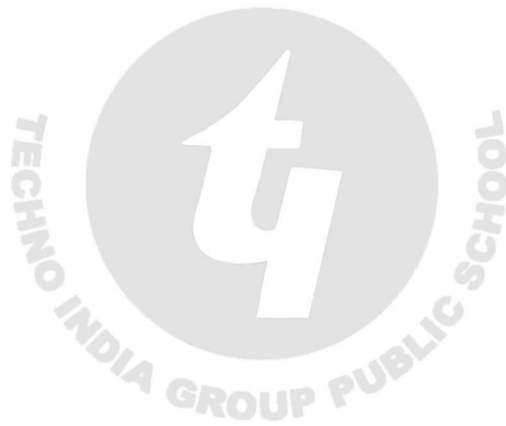
Time: 180 mins

Full Marks: 200

Important Instructions :

1. The Test is of 180 mins duration and the Test Booklet contains 100 multiple choice questions of single correct option only. There are four sections with four subjects. You have to attempt all 100 questions (Candidates are advised to read all 100 questions). Questions 1 to 25 contain Physics, Questions 26 to 50 contain Chemistry, Questions 51 to 75 contain Mathematics, Questions 76 to 100 contain Biology.
2. Each question carries 2 marks. For each correct response, the candidate will get 2 marks. There is no negative mark for wrong response. The maximum mark is 200.
3. Use Blue / Black Ball point Pen only for writing particulars marking responses on Answer Sheet.
4. Rough work is to be done in the space provided for this purpose in the Test Booklet only.
5. On completion of the test, the candidate must handover the Answer Sheet to the invigilator before leaving the Room / Hall. The candidates are allowed to take away this Test Booklet with them.
6. The CODE for this Booklet is Off Line MPT0314062024.
7. The candidates should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet. Do not write your UID No. anywhere else except in the specified space. Use of white fluid for correction is NOT permissible on the Answer Sheet. **Do not scribble or write on or beyond discrete bars of OMR Sheet at both sides.**
8. Each candidate must show on-demand his/her Registration document to the Invigilator.
9. No candidate, without special permission of the Centre Superintendent or Invigilator, would leave his/her seat.
10. Use of Electronic Calculator/Cellphone is prohibited.
11. The candidates are governed by all Rules and Regulations of the examination with regard to their conduct in the Examination Hall. All cases of unfair means will be dealt with as per Rules and Regulations of this examination.
12. No part of the Test Booklet and Answer Sheet shall be detached under any circumstances.
13. There is no scope for altering response mark in Answer Sheet.

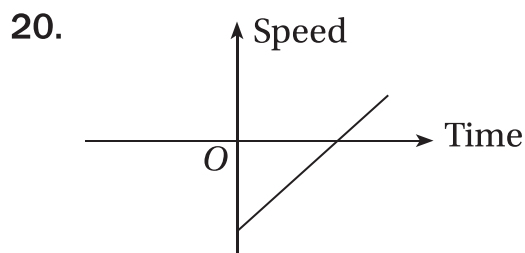
Space For Rough Works



Physics

1. When brakes are applied, the velocity of a car decreases from 40 m s^{-1} to 10 m s^{-1} in 6 s. The acceleration produced in it is (m s^{-2}).
(A) -3 (B) 3 (C) -5 (D) 5
2. The ratio of the times taken by a body moving with uniform acceleration in reaching two points P and Q along a straight line path is $1:\sqrt{3}$. If the body start from rest, then the ratio of the distances of P and Q from the starting point is:
(A) 4 : 1 (B) 1 : 4 (C) 2 : 3 (D) 1 : 3
3. If a particle is moving with uniform velocity, its acceleration is:
(A) Infinite (B) Finite (C) Negative (D) Zero
4. A body starting from rest covers a distance of 9 m in the 3rd second. The acceleration of the body is:
(A) 3.6 m/s^2 (B) 0.2 m/s^2 (C) 1.8 m/s^2 (D) 4 m/s^2
5. A stone is thrown upwards from the surface with an initial speed of 5 m/s. The stone comes to rest height of ($g = 10 \text{ m/s}^2$) h m from ground. Then $10h =$
(A) 1.25 m (B) 12.5 m (C) 125 m (D) 2.45 m
6. A stone is dropped into a lake from a tower 500 m high. The sound of the splash will be heard by a man on the tower after: [speed of sound in air = 330 m/s]
(A) 21 s (B) 10 s (C) 11.5 s (D) 14 s
7. A drunkard is walking along a straight road. He takes 5 steps forward and 3 steps backward and so on. Each step is 1 m long and takes 1 s. There is a pit on the road 11 m away from the starting point. The drunkard will fall into the pit after
(A) 21 s (B) 29 s (C) 31 s (D) 37 s
8. Can displacement be zero?
(A) Yes (B) No (C) Data insufficient (D) None of these
9. If an athlete takes time t to go around once a circular track of radius r , then his speed is
(A) r/t (B) $2r/t$ (C) $2\pi r/t$ (D) $4\pi r/t$
10. Speed and velocity have the same units
(A) False (B) True (C) May be true (D) Sometimes
11. If magnitude of displacement is zero, then the magnitude of velocity is
(A) 1 m/s (B) 2 m/s (C) Zero (D) 4 m/s

12. The CGS unit of velocity is
 (A) m/s^2 (B) cm/s^2 (C) m/s (D) cm/s
13. In the equation of $s = ut - (1/2)at^2$ the a stands for
 (A) Position (B) Speed (C) Retardation (D) Displacement
14. $36 \text{ km/hr} =$
 (A) 1 m/s (B) 5 m/s (C) 10 m/s (D) 0.1 m/s
15. The SI unit of acceleration is
 (A) m (B) m/s (C) m/s^2 (D) m/s^3
16. The dimension of momentum is the same as that of
 (A) Force (B) Impulse (C) Work (D) Energy
17. What is the SI unit of amount of substance?
 (A) Meter (B) Second (C) Candela (D) Mole
18. Dimension of pressure \times area \times (time)²
 (A) MLT (B) ML (C) MLT^2 (D) ML^2T
19. The magnitude of velocity at highest point of vertical motion under gravity is
 (A) 2 m/s (B) 1 m/s (C) 0 m/s (D) 10 m/s



The above graph is

- (A) Correct (B) May be correct (C) Wrong (D) None of these
21. In the formula of kinematics : $V = \sqrt{2as}$ where $u = 0$, the s stands for
 (A) Displacement (B) Acceleration (C) Time (D) None of these
22. If the kinematic equation is in the form of $2s = (u + v) \times P$ then unit of P is
 (A) m (B) m/s (C) s (D) m/s^2

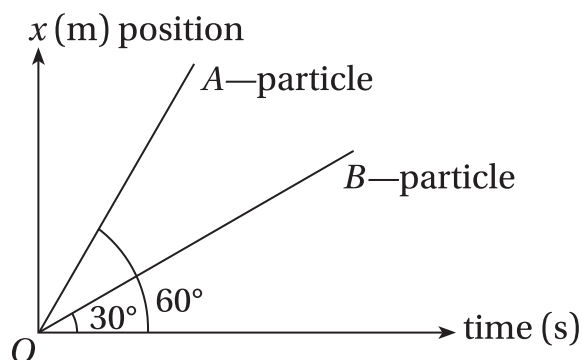
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23. In 3rd second, if displacement moved by the particle is x (where initial velocity is zero)

then $\frac{|x|}{|\text{acceleration}|} =$

- (A) 5/2 (B) 3/2 (C) 2 (D) 3

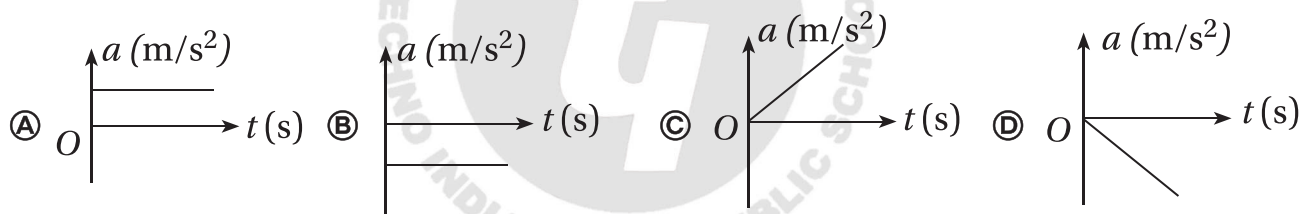
24. Graph :



magnitude of velocity of particle A : magnitude of velocity of particle B

- (A) 3 : 1 (B) 2 : 1 (C) $\sqrt{3} : 1$ (D) $1 : \sqrt{3}$

25. In vertical motion under gravity, the acceleration (or retardation) vs time graph is



Chemistry

26. The formula of a compound when a positive radical with valency 2 and negative radical with valency 1 combine is _____. (A = metal, B = non-metal)

- (A) BA (B) A₂B (C) AB₂ (D) AB

27. If the formulae of respective chlorides of X and Y are XCl₃, and YCl₄, respectively, then the valencies of X and Y are

- (A) 3 and 2 (B) 3 and 4 (C) 1 and 1 (D) 1 and 4

28. Dry ice is—

- (A) Water in solid state (B) Water in gaseous state
(C) CO₂ in liquid state (D) CO₂ in solid state

29. Which of the following factors affect the rate of evaporation—

- (A) Temperature (B) Surface area
(C) Both (A) & (B) (D) None of these

30. The temperature at which liquid starts boiling at atmospheric pressure known as—
Ⓐ Melting point Ⓑ Boiling point Ⓒ Latent heat Ⓓ Condensation
31. If a perfume bottle is opened in one corner of a room, the smell can be felt after sometime in the opposite corner. This shows that
Ⓐ particles of matter are constantly moving
Ⓑ the perfume is strong
Ⓒ the room has fan which circulates the perfume
Ⓓ None of these
32. “All matter is made up of very small particles which cannot be further broken down. These particles are called atoms”. This statement is one of the assumptions of
Ⓐ Rutherford’s nuclear theory Ⓑ Bohr’s theory
Ⓒ Dalton’s atomic theory Ⓓ Kinetic theory of gases
33. The formula of chloride of metal is MCl_3 . What is the formula of metal oxide
Ⓐ MO Ⓑ MO_2 Ⓒ M_2O Ⓓ M_2O_3
34. If a solid non-metal ‘A’ forms oxide of type A_2O_5 , the valency of ‘A’ is
Ⓐ 2 Ⓑ 3 Ⓒ 5 Ⓓ 6
35. **Assertion (A)** : The total mass of the protons of a boron atom is 6185 times the total mass of electrons
Reason (R) : Mass of one proton is 1837 times the mass of electron
Ⓐ Both (A) and (R) true and (R) is the correct explanation for (A)
Ⓑ Both (A) and (R) are true and (R) is not the correct explanation of (A)
Ⓒ (A) is true and (R) is false
Ⓓ (A) is false and (R) is true
36. How much heat is needed to convert 12 gram of ice at $0^\circ C$ to 12 gram of water at $0^\circ C$.
Ⓐ 840 cal Ⓑ 840 Joule Ⓒ 960 Cal Ⓓ 800 Joule
37. Evaporation is called as
Ⓐ Surface phenomenon Ⓑ Bulk phenomenon
Ⓒ Both surface and bulk phenomenon Ⓓ Unique phenomenon
38. Boiling of a liquid takes place at
Ⓐ a fixed temperature lower than its boiling point
Ⓑ a fixed temperature and normal atmospheric pressure

- © a fixed temperature higher than its boiling point
- © a fixed temperature and higher atmospheric pressure

39. Which of the following causes the temperature of a substance to remain constant while it is undergoing a change in its state?

- Ⓐ Latent heat
- Ⓑ Lattice energy
- Ⓒ Loss of heat
- Ⓓ None of these

40. When an incense stick is lit in one corner of the room, the aroma is felt equally in all parts of the room. This is due to

- Ⓐ Evaporation
- Ⓑ Combustion
- Ⓒ Sublimation
- Ⓓ Diffusion

41. Which of the following is an element?

- Ⓐ Carbon dioxide
- Ⓑ Water
- Ⓒ Air
- Ⓓ Nitrogen

42. The chemical formula of potassium permanganate is

- Ⓐ PMnO_4
- Ⓑ PoMnO_4
- Ⓒ KMnO_4
- Ⓓ PtMnO_4

43. Fluids are

- Ⓐ Liquids and gases
- Ⓑ Solids and gases
- Ⓒ Liquids and solids
- Ⓓ Only liquids

44. Which of the following is a metalloid?

- Ⓐ Carbon
- Ⓑ Arsenic
- Ⓒ Iron
- Ⓓ Sodium

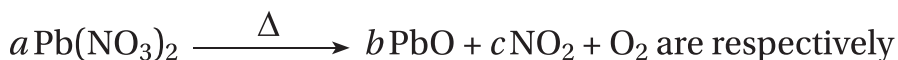
45. On which factor the rate of evaporation does not depend

- Ⓐ Surface area
- Ⓑ Material of the vessel
- Ⓒ Temperature
- Ⓓ Humidity

46. The chemical formula of Aluminium sulphate is

- Ⓐ AlSO_4
- Ⓑ Al_2SO_4
- Ⓒ $\text{Al}_2(\text{SO}_4)_3$
- Ⓓ $\text{Al}_3(\text{SO}_4)_2$

47. The value of a , b and c in the equation



- Ⓐ 4, 2, 2
- Ⓑ 2, 4, 2
- Ⓒ 2, 2, 2
- Ⓓ 2, 2, 4

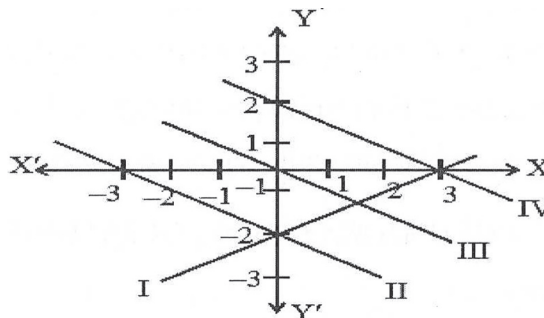
48. Plasma is the _____ state of matter

- Ⓐ First
- Ⓑ Second
- Ⓒ Third
- Ⓓ Fourth

49. Choose the correct statement of the following
- Ⓐ Conversion of solid into vapours without passing through the liquid state is called vapourisation.
 - Ⓑ Conversion solid into vapours without passing through the liquid state is called sublimation.
 - Ⓒ Conversion of vapours into solid without passing through the liquid state is called freezing.
 - Ⓓ Conversion of solid into liquid is called sublimation.
50. A student takes some water in a beaker and heats it over a flame for determining its boiling point. He keeps on taking its temperature readings. He would observe that the temperature of water
- Ⓐ Keeps on increasing regularly
 - Ⓑ Keeps on increasing irregularly
 - Ⓒ First increases slowly, then decreases rapidly
 - Ⓓ First increases regularly and then becomes constant

Mathematics

51. If $x + y = 2013$ and $\frac{1}{x} + \frac{1}{y} = 2013$, what is the value of xy ?
- Ⓐ $\frac{1}{2013}$ Ⓑ 4026 Ⓒ 0 Ⓓ 1
52. If $x = 3$ and $y = -1$ is a solution of equation $2x - 5y + k = 0$ then value of k is
- Ⓐ 11 Ⓑ -1 Ⓒ 1 Ⓓ -11
53. The solution of the equations $2x - 3y = 7$ and $4x - 6y = 20$ is
- Ⓐ $x = 18, y = 12$ Ⓑ $x = 0, y = 0$ Ⓒ No solution Ⓓ $x = 8, y = 5$
54. The graph of $2x + 3y = 6$ is



- Ⓐ I Ⓑ II Ⓒ III Ⓓ IV

55. Given: $3x - 4y = 7$ and $x + cy = 13$, for what value of 'c', the two equations not have a solution?
- (A) $\frac{3}{4}$ (B) $\frac{4}{3}$ (C) -4 (D) $-\frac{4}{3}$
56. The line $x - 7 = 0$ is:
- (A) Parallel to y-axis (B) Parallel to x-axis
(C) Passing through the origin (D) None of these
57. A man has certain number of chickens and goats. Their head count is 30. If the total number of their legs is 84 what is the ratio between the number of chickens and goats?
- (A) 1 : 2 (B) 2 : 3 (C) 3 : 2 (D) 3 : 4
58. In the relation $\frac{C}{5} = \frac{F - 32}{9}$, if the temperature is 37°F , what is the temperature in Celsius
- (A) $25^\circ/2$ (B) $25^\circ/9$ (C) $25^\circ/6$ (D) $25^\circ/6$
59. A temperature is numerically the same in both Fahrenheit and Celsius is—
- (A) -40° (B) -20° (C) -15° (D) -50°
60. If the point (3, 4) lies on the graph of the equation $3y = ax + 7$, the value of a is—
- (A) $\frac{5}{3}$ (B) 1.6 (C) 1 (D) $\frac{2}{5}$
61. Which of the following is the equation of a straight line passing through the points (2, -2), (0, 0) and (-3, 3)?
- (A) $x - y = 0$ (B) $x + y = 0$ (C) $2x - y = 0$ (D) $2x + 2y = 4$
62. A linear equation in two variables x and y is of the form $ax + by + c = 0$ where,
- (A) $a \neq 0, b = 0$ (B) $a \neq 0, b \neq 0$ (C) $a = 0, b \neq 0$ (D) $a = 0, b = 0$
63. The sum of two numbers is 12 and their product is 35. What is the sum of the reciprocals of these numbers?
- (A) $12/35$ (B) $1/35$ (C) $35/8$ (D) $7/32$
64. The solution set of the system of equations $\frac{4}{x} + 5y = 7$, $\frac{3}{x} + 4y = 5$ is :
- (A) $\left(\frac{1}{3}, -1\right)$ (B) $\left(-\frac{1}{3}, 1\right)$ (C) $\left(-\frac{1}{3}, -1\right)$ (D) $\left(\frac{1}{3}, 1\right)$

65. If $y = a + \frac{b}{x}$, where 'a' and 'b' are constants and if $y = 1$ when $x = -1$, and $y = 5$, when $x = -5$, then $a + b$ equals:

- (A) -1 (B) 0 (C) 1 (D) 11

66. If $x = \frac{1}{3-2\sqrt{2}}$, $y = \frac{1}{3+2\sqrt{2}}$, then the value of $x^2 + y^2$ is

- (A) 34 (B) 35 (C) 36 (D) 37

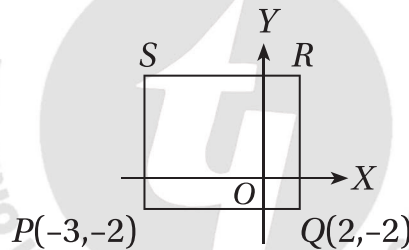
67. If $\sqrt{x} + \frac{1}{\sqrt{x}} = 2$, then the value of $x^8 + \frac{1}{x^8}$ is

- (A) 2 (B) 3 (C) $\sqrt{2}$ (D) 4

68. Abscissa of all the points on x -axis is _____.

- (A) 0 (B) 1 (C) 2 (D) any number

69. The given diagram is drawn on a cartesian plane



PQRS is a square. The coordinates of S are

- (A) (-3, 3) (B) (3, -3) (C) (-3, -3) (D) (-3, 2)

70. The point $P(-5, 3)$ lies in

- (A) quadrant I (B) quadrant II (C) quadrant III (D) quadrant IV

71. If $x + y = 2$ and $x - y = 1$ then $x =$

- (A) 1.5 (B) 3 (C) 2 (D) 1

72. If $x - y = 1$ and $x^2 - y^2 = 3$ then $x + y =$

- (A) 2 (B) 3 (C) 1 (D) 1.5

73. The point(s) lie on the line given by the equation $x + y = 4$ is/are

- (A) (4,0) (B) (0,4) (C) (2,2) (D) All of these

74. If $x - y = 3$, then $y =$

- (A) $x + 3$ (B) $x - 3$ (C) $-x + 3$ (D) $-x - 3$

75. If $x + y = 3$ and $x - y = 1$ then $x^2 - y^2 =$

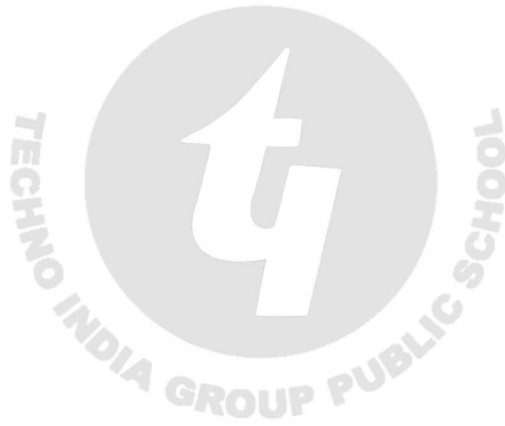
- (A) 2 (B) 1 (C) 3 (D) 4

76. Prokaryotic cells generally show—
(A) Amitosis (B) Mitosis
(C) Meiosis (D) They do not divide
77. The term 'mitosis' was coined by
(A) Flemming (B) Kolliker (C) Fontana (D) Benda
78. In mitosis,
(A) Two daughter cells are produced (B) Three daughter cells are produced
(C) Four daughter cells are produced (D) Six daughter cells are produced
79. In the cell cycle, cell division occurs during
(A) M phase (B) G₁ phase (C) G₂ phase (D) S-phase
80. The mother cell undergoing meiosis is—
(A) Haploid (B) Diploid (C) Triploid (D) Tetraploid
81. In mitosis, the resultant daughter cells are
(A) Haploid (B) Diploid (C) Triploid (D) Tetraploid
82. During which phase of the cell cycle is DNA synthesised?
(A) G₁ phase (B) G₂ phase (C) S phase (D) M phase
83. Cell division was first observed by _____ in plant cell.
(A) Prevost (B) Dumas (C) Nageli (D) None
84. Which cell organelle helps in initiation of cell division in animal cells?
(A) Plastids (B) Centrosome (C) Mitochondria (D) Ribosome
85. Division of nucleus during cell division is called—
(A) Karyokinesis (B) Cytokinesis (C) Mitosis (D) Differentiation
86. Choose the correct sequence of steps during division of nucleus—
(A) Prophase → Metaphase → Telophase → Anaphase
(B) Prophase → Telophase → Metaphase → Anaphase
(C) Telophase → Anaphase → Metaphase → Prophase
(D) Prophase → Metaphase → Anaphase → Telophase

87. Mitosis occurs in—
Ⓐ All cells of the body, living or dead
Ⓑ All living cells of the body
Ⓒ All living cells of the body, except those leading to the formation of gametes
Ⓓ Cells taking part in the formation of gametes
88. Mitosis is referred to as—
Ⓐ Equal division
Ⓑ Equational division
Ⓒ Reduction division
Ⓓ Non-equational division
89. In meiosis, the mother cell produces _____ daughter cells
Ⓐ One Ⓑ Two Ⓒ Three Ⓓ Four
90. Meiosis results in the formation of _____.
Ⓐ Sperms Ⓑ Ovum Ⓒ Gonads Ⓓ Both Ⓐ and Ⓑ
91. Protoplasm, excluding nucleus, is called : _____
Ⓐ Cytoplasm Ⓑ Endoplasm Ⓒ Ectoplasm Ⓓ Neuroplasm
92. The number of chromosomes found in prokaryotic cells are—
Ⓐ One Ⓑ Two Ⓒ Three Ⓓ Four
93. Grana & stroma occur in—
Ⓐ Ribosome Ⓑ Chloroplast Ⓒ Mitochondria Ⓓ Golgi body
94. 'Suicidal bag' is the nick name for—
Ⓐ ER Ⓑ Vacuole Ⓒ Ribosome Ⓓ Lysosome
95. Ribosomes are centre for—
Ⓐ Respiration Ⓑ Photosynthesis
Ⓒ Protein synthesis Ⓓ Fat synthesis
96. Choose the incorrect statement about prokaryotic cells.
Ⓐ They show a nucleoid in their cells.
Ⓑ The nuclear region is covered by a nuclear membrane.
Ⓒ They are smaller than eukaryotic cells.
Ⓓ They have ribosomes.

97. Mitochondria plays an important role in—
- Ⓐ Intracellular digestion
 - Ⓑ Controlling the activities of the cell
 - Ⓒ Producing energy during respiration
 - Ⓓ Cell division
98. What will happen to an animal cell placed in an isotonic solution?
- Ⓐ The cell will swell
 - Ⓑ The cell will shrink
 - Ⓒ The cell will swell and burst
 - Ⓓ No change will be observed in the size of the cell
99. The endoplasmic reticulum that synthesises lipids _____
- Ⓐ have ribosomes attached to it
 - Ⓑ have lysosomes attached to it
 - Ⓒ are devoid of ribosomes
 - Ⓓ are called rough endoplasmic reticulum
100. Which organelle imparts colour to flowers and fruits?
- Ⓐ Chromoplast
 - Ⓑ Ribosome
 - Ⓒ Chloroplast
 - Ⓓ Mitochondria

Space For Rough Works



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