Monthly Progressive Test

Class: X (S)

Subject: PCMB

Academic Excellence Programme TECHNO ACE

Test Booklet No.: MPT06(S) **Test Date:** 03102024

Time: 120 mins **Full Marks: 200**

Important Instructions :

1. The Test is of 120 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 MPT06(S)03102024.
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 scrible 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.

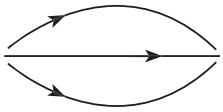
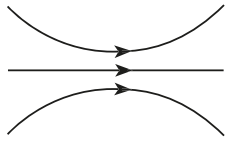
Space For Rough Works

Physics

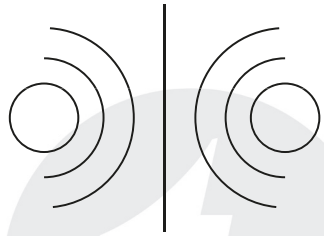
1. Alnico is alloy, used for making strong permanent magnet than those made of ordinary steel. It is alloy of

   Ⓐ Aluminium Ⓑ Nickel Ⓒ Cobalt Ⓓ All of the above

2. The magnetic field line which exists well inside a current-carrying solenoids

   Ⓐ  Ⓑ  Ⓒ  Ⓓ None of the above

3. Below, represents magnetic field lines caused by a current-carrying conductor which is

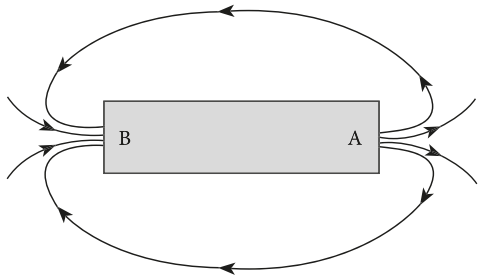
   Ⓐ A short straight wire Ⓑ A solenoid

   Ⓒ A circular coil Ⓓ A long straight wire

4. The direction of current in the coil at one end of an electromagnet is clockwise. This end of electromagnet will be

   Ⓐ N-pole Ⓑ S-pole Ⓒ East pole Ⓓ West pole

5. Identify the poles of a magnet

   Ⓐ A : S; B : N Ⓑ A : N; B : N Ⓒ A : N; B : S Ⓓ A : S; B : S

6. The direction of magnetic field lines outside a bar magnet is

   Ⓐ From South to North pole Ⓑ From North to South pole

   Ⓒ Both Ⓐ and Ⓑ are correct Ⓓ None of the above is correct

7. The crowding of magnetic field lines indicates

Ⓐ Weak magnetic field strength Ⓑ Strong magnetic field strength

Ⓒ No magnetic field strength Ⓓ Impossible to say

8. When a long insulated wire is tightly wound in the shape of a spring, with closely spaced turns that lie side by side is called

Ⓐ Solenoid Ⓑ Paraboloid Ⓒ Toroid Ⓓ None of the above

9. Generally, a solenoid is made by winding a insulated conducting wire over a nonconducting cylindrical tube

Ⓐ True Ⓑ False Ⓒ May be false Ⓓ None of the above

10. A solenoid differs from a circular coil in that the length of the solenoid is much greater than its diameter

Ⓐ False Ⓑ True Ⓒ May be true Ⓓ None of these

11. In solenoid,each turn produces it's own magnetic field

Ⓐ Correct Ⓑ Wrong Ⓒ Maybe correct Ⓓ None of these

Assertion-Reason type Questions (12–13):

Directions: Read the following questions and choose any one of the following four responses.

A. If both Assertion and Reason are true and Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true but Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If Assertion is false but Reason is true.

12. **Assertion:** Magnetic field inside a long current carrying solenoid is uniform.

Reason: Current carrying solenoid has opposite poles at its ends.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

13. **Assertion:** Pattern of field lines outside the solenoid is similar to that of a bar magnet.

Reason: A current carrying solenoid behaves like a bar magnet.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

Case Study Based Questions (14–15):

In general, if current through a circular coil flows in clockwise direction, then the direction of magnetic field at the centre of the circular coil is perpendicular to the plane of coil, directed inwards. On the other hand, if current in coil is anticlockwise, the direction of magnetic field is directed outward. If the radius of the current loop is very large, the magnetic field near the centre of current loop is almost uniform. The direction of magnetic field at the centre of circular current loop is given by right hand rule.

14. Write the direction of magnetic field for clockwise current in a loop.

Ⓐ Inwards Ⓑ Outwards Ⓒ May be inward Ⓓ None of the abobe

15. Write the direction of magnetic field for anticlockwise current in a circular loop.

Ⓐ Inwards Ⓑ Outwards Ⓒ May be inward Ⓓ None of the abobe

16. Select the wrong option for charge =

Ⓐ +10e Ⓑ –6e Ⓒ no charge Ⓓ 3.57 e

17. Power = $100/f$ where f is in

Ⓐ cm Ⓑ m Ⓒ ft Ⓓ km

18. If the angle of incidence (for reflection)is 30°, then angle of deviation is

Ⓐ 90° Ⓑ 110° Ⓒ 100° Ⓓ 120°

19. If $n_{kerosene} = 1.44$; $n_{glass} = 1.5$, $n_{water} = 1.33$,

In which of these materials does light travel fastest

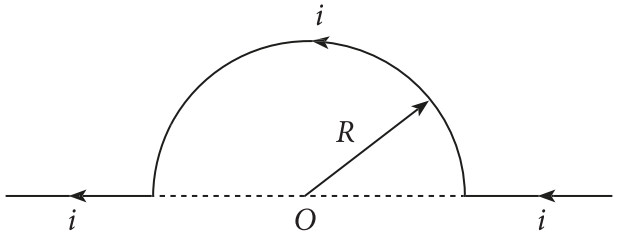
Ⓐ Kerosene Ⓑ Glass Ⓒ Water Ⓓ We can't say

20. The power of a concave lens is –2D and power of a convex lens is +6D. Then when they are in contact, the combined power will be

Ⓐ Concave nature Ⓑ Convex nature

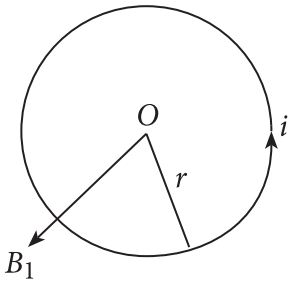
Ⓒ May be concave in nature Ⓓ We can't say

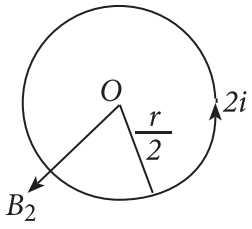
21. Find the direction of B at the centre O.



Ⓐ ⊙ Ⓑ ⊗ Ⓒ No direction Ⓓ None of these

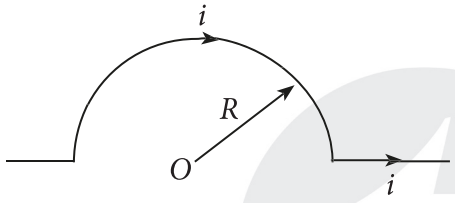
22. Find the ratio $\frac{B_2}{B_1} = ?$

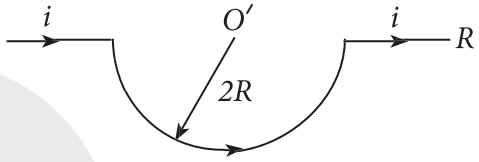




Ⓐ 1 : 2 Ⓑ 1 : 3 Ⓒ 4 : 1 Ⓓ 1 : 5

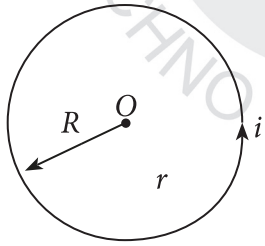
23. Then $\frac{B_1}{B_2} = ?$

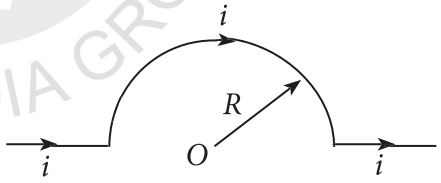




Ⓐ 1 : 2 Ⓑ 1 : 3 Ⓒ 4 : 1 Ⓓ 2 : 1

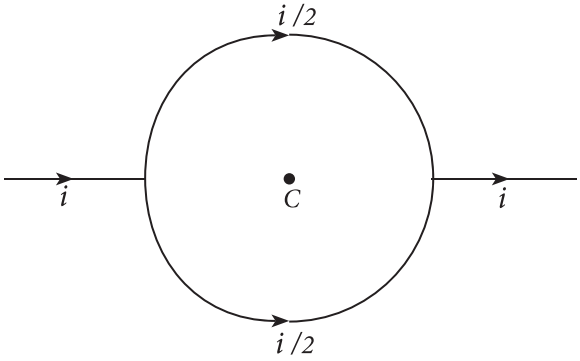
24. The ratio of B_1 and B_2 is





Ⓐ 1 : 3 Ⓑ 3 : 1 Ⓒ 2 : 1 Ⓓ 1 : 4

25. The magnetic field at the centre C.



Ⓐ OT Ⓑ 2T Ⓒ 3T Ⓓ 4T

Chemistry

26. Among the given molecules, which is an amphoteric oxide ?

Ⓐ N_2O Ⓑ As_2O_3 Ⓒ CaO Ⓓ Fe_2O_3

27. An element has the electronic configuration 2.8.8.2. In modern periodic table, it is at

Ⓐ 4th period & 10th group Ⓑ 4th period & 8th group

Ⓒ 4th period & 2nd group Ⓓ 4th period & 6th group

28. Correct order of atomic radius is

Ⓐ N > O > F Ⓑ N > F > O Ⓒ F > O > N Ⓓ F > N > O

29. Which non-metal is used as a food preservative?

Ⓐ N_2 Ⓑ Cl_2 Ⓒ H_2 Ⓓ O_2

30. Which non-metal is solid?

Ⓐ Sodium Ⓑ Iodine

Ⓒ Bromine Ⓓ Oxygen

Assertion Reason Type Question (31–32):

Read the two statements carefully and select the correct option given below.

A: Assertion and Reason both are correct and Reason is the correct explanation of Assertion

B: Assertion and Reason both are correct and Reason is not the correct explanation of Assertion

C: Assertion is correct but Reason is wrong

D: Assertion is wrong but Reason is correct

31. **Assertion:** Zn can release H_2 gas from dilute H_2SO_4 but Cu cannot.

Reason: In activity series Zn is placed higher than hydrogen and Cu is placed lower.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

32. **Assertion:** NaCl has higher melting point than CCl_4.

Reason: NaCl is soluble in water.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

33. Among the given elements, which can release electron(s) most easily ?

Ⓐ Rb Ⓑ Cs Ⓒ Li Ⓓ Na

34. Oxide of which group of modern periodic table is acidic ?

Ⓐ Group 2 Ⓑ Group 12

Ⓒ Group 17 Ⓓ Group 8

Assertion Reason Type Question (35–36):

Read the two statements carefully and select the correct option given below.

A: Assertion and Reason both are correct and Reason is the correct explanation of Assertion

B: Assertion and Reason both are correct and Reason is not the correct explanation of Assertion

C: Assertion is correct but Reason is wrong

D: Assertion is wrong but Reason is correct

35. **Assertion :** Atomic number is more fundamental property than atomic weight.

Reason : Atomic number deals with the number of electrons which is responsible for the chemical properties of the elements.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

36. **Assertion :** If we move from top to bottom in a group then radius increases.

Reason : If we move from top to bottom in a group then new shells are introduced

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

Case Study Based Questions (37–38):

Atomic radius is the distance between the nucleus and the outermost shell. The number of electron(s) in the outershells of the elements in the same group is equal. Now, if we move from top to bottom in a group, then new shells are introduced and radius increases. The chemical properties of all the elements in a same group are very much similar to each other. Now, higher the atomic radius, the force of attraction between nucleus and the outermost shell becomes low and hence electron release will be very easy.

37. When radius increases, then force of attraction between nucleus and the outermost shell

Ⓐ Decreases Ⓑ Increases

Ⓒ First increases then decreases Ⓓ First decreases then increases

38. If we move from top to bottom in a group then atomic radius

Ⓐ Decreases Ⓑ Increases

Ⓒ First increases then decreases Ⓓ First decreases then increases

39. False statement about a strong metal is

Ⓐ It is good oxidising agent
Ⓑ It has low ionization energy
Ⓒ It has low electronegativity
Ⓓ It always prefer to form ionic bond

40. Find out correct statement

Ⓐ Isotopes of same element are placed at different groups in the modern periodic table
Ⓑ The molecular formula of chloride of eka - aluminium is ECl_4
Ⓒ Atomic masses of the elements increase in a regular manner
Ⓓ Hydrogen can form both cation and anion

41. Chemical formula of Glauber salt is

Ⓐ $Na_2CO_3.10H_2O$
Ⓑ $Na_2SO_4.5H_2O$
Ⓒ $Na_2SO_4.10H_2O$
Ⓓ $MgSO_4.7H_2O$

42. When CO_2 gas comes in contact with aqueous $Ca(OH)_2$ then the correct product is

Ⓐ White coloured CaC_2
Ⓑ White coloured $CaCO_3$
Ⓒ Yellow coloured CaC_2
Ⓓ Yellow coloured $CaCO_3$

43. CH_3COOH is a

Ⓐ Monobasic acid
Ⓑ Dibasic acid
Ⓒ Tribasic acid
Ⓓ Cannot be predicted about its basicity

44. Which of the following is not a method to produce sodium chloride ?

Ⓐ Evaporation of sea water
Ⓑ Reaction between dilute NaOH and dilute HCl solutions
Ⓒ Reaction between sodium bicarbonate and dilute hydrochloric acid
Ⓓ Sodium metal is exposed in air

45. Plaster of Paris containing packets are properly sealed. Because when it comes contact with air then

Ⓐ white colour changes into yellow
Ⓑ it absorbs water vapour and becomes liquid
Ⓒ it becomes very hard as gypsum is formed
Ⓓ it starts to release sulpher dioxide gas

Case Study Based Questions (46–47):

An ionic compound is a chemical compound in which ions of elements are held together by ionic bonds. In this type of bond, two oppositely charged ions are held strongly through electrostatic forces. Metals have loosely bound electrons in their valence shell whereas non-metals need electrons for octet completion and to attain noble gas configuration. The metal thus completely loses an electron and the non-metal accepts it. By this transfer of electrons, the atoms remain no longer natural. Cations and anions are formed respectively. Usually, ionic compounds are solids and found in the form of crystals. They have high melting and boiling points.

46. Consider these statements about ionic compounds:

I. They conduct electricity in solid-state

II. They conduct electricity in solutions

III. They conduct electricity in the molten state

Choose the correct option:

Ⓐ I only Ⓑ III only Ⓒ II only Ⓓ II & III only

47. Ionic compounds are soluble in which of the following?

Ⓐ Petrol Ⓑ Water Ⓒ Kerosene Ⓓ Edible oil

Assertion Reason Type Question (48–49):

Read the two statements carefully and select the correct option given below.

A: Assertion and Reason both are correct and Reason is the correct explanation of Assertion

B: Assertion and Reason both are correct and Reason is not the correct explanation of Assertion

C: Assertion is correct but Reason is wrong

D: Assertion is wrong but Reason is correct

48. **Assertion :** Ionic compounds generally have high melting points.

Reason : It is because they are ionic in nature and forms a very stable crystal.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

49. **Assertion :** Reactivity series is an arrangement of element based on their reactively.

Reason : Reactivity series is used to separate elements based on their reactively

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

50. Which of the following alloys contain non-metal as one of their constituents?

Ⓐ Brass Ⓑ Steel Ⓒ Bronze Ⓓ Amalgam

Mathematics

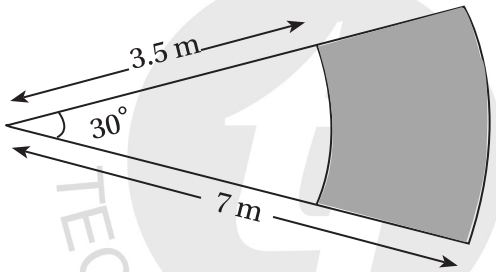
51. A blacksmith Rajesh bent a steel wire, in the form of a square, encloses an area of 121 sq cm. The same wire he bent in the form of a circle, then the area of the circle is

Ⓐ $22\ cm^2$ Ⓑ $154\ cm^2$ Ⓒ $44\ cm^2$ Ⓓ $77\ cm^2$

52. A square of side 4cm is inscribed in a circle, then the area enclosed between the circle and the square is

Ⓐ $10\frac{1}{7}\ cm^2$ Ⓑ $9\frac{1}{7}\ cm^2$ Ⓒ $25\frac{1}{7}\ cm^2$ Ⓓ $16\ cm^2$

53. Flowers are to be planted in the shaded portion which is shown by sectors of two concentric circles of radii 7 m and 3.5 m, then the area of the shaded region is $\left(\text{use } \pi = \frac{22}{7}\right)$

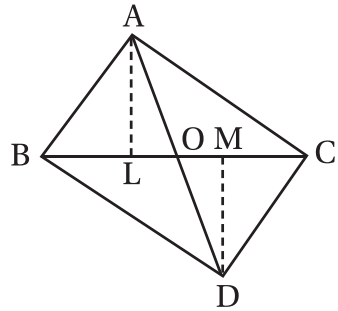


Ⓐ $9.625\ m^2$ Ⓑ $9\ m^2$ Ⓒ $10\ m^2$ Ⓓ $8.5\ m^2$

54. If the n^{th} term of sequence is $3 + 2n$, then the sum of its first 20 terms is

Ⓐ 480 Ⓑ 520 Ⓒ 500 Ⓓ 460

55. In the adjoining figure, ABC and DBC are two triangles on the same base BC, AL ⊥ BC and DM ⊥ BC. Then, $\frac{area\,(\Delta ABC)}{area\,(\Delta DBC)}$ is equal to



Ⓐ $\frac{AO}{OD}$ Ⓑ $\frac{AO^2}{OD^2}$

Ⓒ $\frac{AO}{AD}$ Ⓓ $\frac{OD^2}{AO^2}$

56. If a, b, c are in A. P. then the straight line $ax + by + c = 0$ will always pass through a fixed point whose co-ordinates are

Ⓐ $(1, -2)$ Ⓑ $(-1, 2)$ Ⓒ $(1, 2)$ Ⓓ $(-1, -2)$

57. If $x = \sin^2\theta\cos\theta$ and $y = \cos^2\theta\sin\theta$, then

Ⓐ $(x^2y)^{2/3} + (xy^2)^{2/3} = 1$ Ⓑ $\left(\frac{x^2}{y}\right)^{2/3} + \left(\frac{y^2}{x}\right)^{2/3} = 1$

Ⓒ $x^2 + y^2 = x^2y^2$ Ⓓ None of these

Assertion Reason based Questions (58–59):

Directions: In the following questions, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

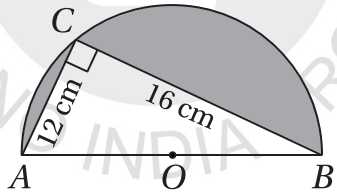
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

(c) Assertion (A) is true but reason (R) is false.

(d) Assertion (A) is false but reason (R) is true.

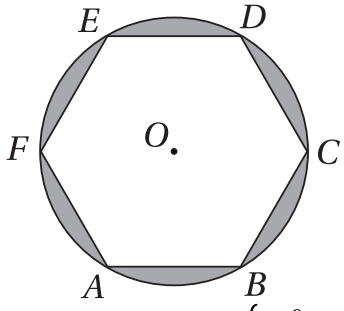
58. **Assertion (A):** O is the centre of a circular arc and AOB is a straight line. Then the area of the shaded region is 61.1 cm^2 (where $\pi = 3.142$).

Reason (R): Area of the shaded region = area of semi–circle with AB as diameter – area of $\triangle ABC$.



Ⓐ a Ⓑ b Ⓒ c Ⓓ d

59. **Assertion (A):** A round table cover has six equal designs in this figure. Radius of the circle is 14 cm then the area of the shaded region is 464 cm^2 (where $\sqrt{3} = 1.7$).

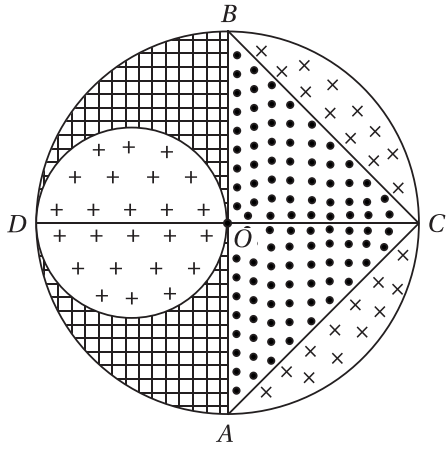


Reason (R): Area of six designed regions $= 6\left\{\frac{\theta}{360^\circ} \times \pi r^2 - \sin\frac{\theta}{2}.\cos\frac{\theta}{2}r^2\right\}$ $unit^2$.

Ⓐ a Ⓑ b Ⓒ c Ⓓ d

Case Study Based Questions (60–62):

Mr. Nash has drawn a nice geometrical figure where AB and CD are two diameters of a circle (with centre O) perpendicular to each other and OD is the diameter of the smaller circle.



He has measured $OA = OC = OB = OD = 7$ cm.

On the basis of the above information answer the following questions.

60. Calculate the area of  region.

Ⓐ 38.5 cm^2 Ⓑ 40.5 cm^2 Ⓒ 36 cm^2 Ⓓ 42 cm^2

61. Calculate the area of  region

Ⓐ 30 cm^2 Ⓑ 28 cm^2 Ⓒ 30.5 cm^2 Ⓓ 28.2 cm^2

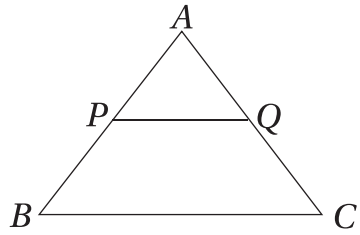
62. Calculate the area of  region

Ⓐ 80 cm^2 Ⓑ 87 cm^2 Ⓒ 70 cm^2 Ⓓ 49 cm^2

63. If there are $(2n + 1)$ terms in an A.P., then the ratio of the sum of its odd terms to sum of its even terms is

Ⓐ $\frac{n+1}{n}$ Ⓑ $\frac{n-1}{n}$ Ⓒ $\frac{n}{n-1}$ Ⓓ $\frac{n}{n+1}$

64. In the given figure $PQ \parallel BC$ and $3AB = 4PA$. What will be the ratio of areas ΔABC and trap.$(PQCB)$?



Ⓐ 9 : 7 Ⓑ 7 : 9 Ⓒ 16 : 7 Ⓓ 16 : 9

65. If the centroid of the triangle formed by the points (a, b), (b, c) and (c, a) is at the origin, then $a^3 + b^3 + c^3 =$

Ⓐ abc Ⓑ 8 Ⓒ $a + b + c$ Ⓓ $3abc$

66. The number of zeroes that polynomial $f(x) = (x - 2)^2 + 4$ can have is

Ⓐ 1 Ⓑ 2 Ⓒ 0 Ⓓ 3

67. A fraction becomes $\frac{4}{5}$ when 1 is added to each of the numerator and denominator. However, if we subtract 5 from each then it becomes $\frac{1}{2}$. The fraction is

Ⓐ $\frac{5}{8}$ Ⓑ $\frac{5}{6}$ Ⓒ $\frac{7}{9}$ Ⓓ $\frac{13}{16}$

68. If the sum of the roots of the equation $ax^2 + bx + c = 0$ is equal to product of their reciprocals, then

Ⓐ $a^2 + bc = 0$ Ⓑ $b^2 + ca = 0$ Ⓒ $c^2 + ab = 0$ Ⓓ $b + c = 0$

69. The number of terms common to the two A.P. s

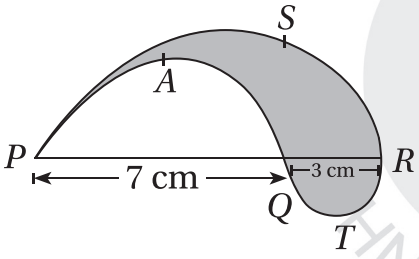
$2 + 5 + 8 + 11 + ...+ 98$ and $3 + 8 + 13 + 18 + ... + 198$ is

Ⓐ 33 Ⓑ 40 Ⓒ 7 Ⓓ None of these

70. ABC is a right- angled triangle, right angled at B such that BC = 6 cm and AB = 8 cm. A circle with centre O is inscribed in ΔABC. The radius of the circle is

Ⓐ 1 cm Ⓑ 2 cm Ⓒ 3 cm Ⓓ 4 cm

71.



Calculate the area of the shaded region.

Ⓐ 21.4 cm^2 Ⓑ 11.4 cm^2 Ⓒ 23.6 cm^2 Ⓓ 41.4 cm^2

72. If (3, –4) and (–6, 5) are the extremities of the diagonal of a parallelogram and (–2, 1) is its third vertex, then its fourth vertex is

Ⓐ (–1, 0) Ⓑ (0, –1) Ⓒ (–1, 1) Ⓓ None of these

73. ΔABC is such that $AB = 3$ cm, $BC = 2$ cm and $CA = 2.5$ cm. ΔDEF is similar to ΔABC. If $EF = 4$ cm, then the perimeter of ΔDEF is

Ⓐ 7.5 cm Ⓑ 15 cm Ⓒ 30 cm Ⓓ 22.5 cm

74. If $a_1, a_2, ..., a_{19}$ are the first 19 terms of an AP and $a_1 + a_8 + a_{12} + a_{19} = 224$. Then $\sum_{i=1}^{19} a_i$ is equal to

Ⓐ 896 Ⓑ 1064 Ⓒ 1120 Ⓓ 1164

75. If $\sin\phi$ and $\cos\phi$ are the roots of the equation $ax^2 + bx + c = 0$, then

Ⓐ $(a - c)^2 + c^2 = b^2$ Ⓑ $(a - c)^2 - c^2 = b^2$ Ⓒ $(a + c)^2 + c^2 = b^2$ Ⓓ $(a + c)^2 - c^2 = b^2$

76. 'Homeostasis' term was proposed by:

Ⓐ Claude Bernard Ⓑ Walter Cannon

Ⓒ Marcello Malpighi Ⓓ Henle

77. Excretory materials are formed in :

Ⓐ Kidney Ⓑ Rectum Ⓒ Liver Ⓓ Every cell in body

78. Urine leaves the kidney through :

Ⓐ Urethra Ⓑ Collecting duct Ⓒ Renal vein Ⓓ Ureter

79. The cerebellum is concerned with—

Ⓐ Perception Ⓑ Co-ordination and movement

Ⓒ Vision Ⓓ Memory

80. Urea is transported through

Ⓐ RBCs Ⓑ WBCs Ⓒ Plasma Ⓓ All of the above

81. Tannins are deposited in –

Ⓐ Bark Ⓑ Xylem Ⓒ Sieve tubes Ⓓ Both Ⓐ and Ⓑ

82. Goitre is caused by deficiency of –

Ⓐ Thyroxine Ⓑ Insulin

Ⓒ ADH Ⓓ Oestrogen

83. Unicellular organisms perform excretion by the process of –

Ⓐ Simple diffusion Ⓑ Osmosis

Ⓒ Facilitated diffusion Ⓓ Imbibition

84. Urea is formed in–

Ⓐ Liver Ⓑ Spleen Ⓒ Kidney Ⓓ None of these

85. The pituitary hormone responsible for the concentration of urine is –

Ⓐ GH Ⓑ ACTH Ⓒ ADH Ⓓ TSH

Assertion-Reason type Questions (86–87):

Directions: Read the following questions and choose any one of the following four responses.

A. Both Assertion and Reason are true and Reason is the correct explanation of the Assertion.

B. Both Assertion and Reason are true but Reason is not the correct explanation of the Assertion.

C. Assertion is true but Reason is false.

D. Assertion is false but Reason is true.

86. **Assertion:** Variations may not be important to an individual, but is beneficial to the species.

Reason: Variations arise due to errors caused during DNA copying.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

87. **Assertion:** A condom is a mechanical barrier method of contraception.

Reason: A condom prevents a sperm and an ovum from coming in contact with each other.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

Case Study Based Questions (88–90):

Read the given passage and answer the following questions :

Nervous system cannot meet all the requirements of a multicellular organism because nerve impulse cannot reach every cell of the body. Besides, nervous stimulation is only for short duration while certain activities require prolonged stimulation. Therefore, multi-cellular animals also have a second system of communication, called endocrine system.

88. The secretion of the endocrine glands are called

Ⓐ Enzymes Ⓑ Hormones

Ⓒ Neurotransmitter Ⓓ CSF

89. The master endocrine gland of the body is

Ⓐ Pituitary gland Ⓑ Thyroid gland Ⓒ Adrenal gland Ⓓ Pancreas

90. Our brain weighs 1400 grams. Yet we dont feel such due to heavy structure over our head due to –

Ⓐ The blanket of atmosphere around us

Ⓑ The vertebral column supports the brain

Ⓒ The cerebrospinal fluid provides buoyancy

Ⓓ The cerebrospinal fluid absorbs shocks

91. Fat $\xrightarrow{A}$ Fatty acids +B

Identify the enzyme A and product B

Ⓐ Amylase and maltose, respecively

Ⓑ Lipase and glycerol respectively

Ⓒ Maltase and maltose, respectively

Ⓓ None of the above

Assertion-Reason type Questions (92–93):

Directions: Read the following questions and choose any one of the following four responses.

A. Both Assertion and Reason are true and Reason is the correct explanation of the Assertion.

B. Both Assertion and Reason are true but Reason is not the correct explanation of the Assertion.

C. Assertion is true but the Reason is false.

D. Assertion is false but Reason is true.

92. **Assertion:** Pollen tube grows towards ovule.

Reason: Chemotropism is responsible for the movement of pollen tube.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

93. **Assertion:** Gametes are unfertilised reproductive cells.

Reason: Zygote is a fertilised ovum.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

94. Study the figure given below that represents the vegetative reproduction in plants.

Identify X and Y

	X	Y
(i)	Node	Vegetative propagule
(ii)	Vegetative propagule	Internode
(iii)	Vegetative propagule	Node
(iv)	Internode	Node

Ⓐ (i) Ⓑ (ii) Ⓒ (iii) Ⓓ (iv)

95. Which part of the flower would turn to a fruit post fertilisation?

Ⓐ Style Ⓑ Anther Ⓒ Stigma Ⓓ Ovary

96. Which of the following sets represents the wastes released through urine ?

Ⓐ Water, Urea, Uric acid, Oxygen

Ⓑ Water, Creatinine, Uric acid, Oxygen

Ⓒ Urea, Uric acid, Creatinine, Oxygen

Ⓓ Water, Urea, Uric acid, Creatinine

97. The process of shedding out of the unfertilized ovum is called

Ⓐ Fertilisation Ⓑ Menarche Ⓒ Menstruation Ⓓ Implantation

98. Which of the following is the primary function of cerebellum?

Ⓐ Regulating body temperature

Ⓑ Controlling voluntary movements and maintaining posture

Ⓒ Facilitating memory and learning

Ⓓ Managing emotions and stress response

99. Brain stem is formed by the union of

Ⓐ Optic lobes Ⓑ Cerebellum with optic lobes

Ⓒ Corpora striata Ⓓ Midbrain, pons and medulla oblongata

100. Mrs. Mehra, who is 32 years old, underwent a surgery to get her ovaries removed after having girl. Now she wants to have another baby. Do you think she can have another baby?

Ⓐ Yes, she can have another baby as only the ovaries are removed from the female reproductive system.

Ⓑ No, she cannot have another baby because fertilization of egg takes place in the oviduct.

Ⓒ Yes, she can have another baby because the surgery can be reversed.

Ⓓ No, she cannot have another baby as the eggs will not be produced any more.

Space For Rough Works

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