Monthly Progessive Test

Class: XI

Subject: PCMB

Academic Excellence Programme — TECHNO ACE

Test Booklet No.: MPT02

Test Date: 1 0 0 5 2 0 2 4

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 MPT0210052024.

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.

Physics

1. If E and G respectively denote energy and gravitational constant, then $\frac{E}{G}$ has the dimensions of

   Ⓐ $[M^2][L^{-2}][T^{-1}]$ Ⓑ $[M^2][L^{-1}][T^0]$ Ⓒ $[M][L^{-1}][T^{-1}]$ Ⓓ $[M][L^0][T^0]$

2. Dimensions of stress are

   Ⓐ $[MLT^{-2}]$ Ⓑ $[ML^2T^{-2}]$ Ⓒ $[ML^0T^{-2}]$ Ⓓ $[ML^{-1}T^{-2}]$

3. The dimensions of heat capacity are

   Ⓐ $[ML^{-2}T^{-2}A^{-1}]$ Ⓑ $[ML^2T^{-2}K^{-1}]$ Ⓒ $[M^{-1}L^2T^{-2}K^{-1}]$ Ⓓ $[MLT^{-2}K]$

4. If the result of physical quantity expressed in different unit (using $n_1u_1 = n_2u_2$)

   Ⓐ $n\,\alpha\,\sqrt{u}$ Ⓑ $n\,\alpha\,u^3$ Ⓒ $n\,\alpha\,u^{-1}$ Ⓓ $n\,\alpha\,u^{-2}$

5. π is

   Ⓐ dimensionless quantity   Ⓑ has a unit

   Ⓒ both Ⓐ and Ⓑ are correct   Ⓓ none of the above is correct

6. The pair of quantities having same dimensions is

   Ⓐ Impulse and surface tension   Ⓑ Angular momentum and work

   Ⓒ Work and torque   Ⓓ Young's modulus and energy

7. S. I unit of force is

   Ⓐ watt   Ⓑ dyne   Ⓒ newton   Ⓓ poundal

8. 18/5 Km/hr =

   Ⓐ 10 m/s   Ⓑ 0.1 m/s   Ⓒ 1 m/s   Ⓓ 100 m/s

9. 0.8 g/cc =

   Ⓐ 80 kg/m³   Ⓑ 8 kg/m³   Ⓒ 0.8 kg/m³   Ⓓ 800 Kg/m³

10. The unit used to express the distance of stars

    Ⓐ Parsec   Ⓑ m   Ⓒ mile   Ⓓ cm

11. 10^{15} Fermi =

    Ⓐ 1 cm   Ⓑ 10 cm   Ⓒ 1 m   Ⓓ 10 m

12. [Velocity gradient] =

    Ⓐ MLT Ⓑ LT Ⓒ T^{-1} Ⓓ L

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13. [Linear momentum] =

Ⓐ MLT Ⓑ MLT^{-1} Ⓒ L Ⓓ LT

14. [Escape velocity] =

Ⓐ MLT Ⓑ LT Ⓒ LT^{-1} Ⓓ ML

15. [Refractive index] =

Ⓐ Dimensionless   Ⓑ ML Ⓒ LT Ⓓ MT

16. 1 newton = x dyne then x =

Ⓐ 10^4 Ⓑ 10^5 Ⓒ 10^6 Ⓓ 10^7

17. 1 joule = y erg then y =

Ⓐ 10^4 Ⓑ 10^5 Ⓒ 10^6 Ⓓ 10^7

18. 1 litre = z cc then z =

Ⓐ 100   Ⓑ 10   Ⓒ 1000   Ⓓ 1

19. If two vectors of equal magnitude p are acting at a point and angle between the vectors is 120°, then magnitude of resultant vector is

Ⓐ P   Ⓑ $P\sqrt{2}$ Ⓒ 2P   Ⓓ $\frac{P}{2}$

20. A person has walked 3m towards East and then 4m towards North, then the magnitude of displacement is

Ⓐ 7m   Ⓑ 5m   Ⓒ 4m   Ⓓ 4.5m

21. If Kinetic energy = (3/16)mv², where m is mass and v is for velocity, then the given expression is dimensionally correct or not

Ⓐ correct   Ⓑ not correct

Ⓒ some times correct   Ⓓ none of these

22. In the given formula F = k.mv²/r, where m is mass, v is velocity and r is the radius, whereas F stands for force. Then [k] =

Ⓐ MLT   Ⓑ dimensionless   Ⓒ MLT²   Ⓓ MLT

23. In Force (F)-acceleration (A)-time (T) system, the dimensional formula of mass is

Ⓐ FA   Ⓑ FA²   Ⓒ F²A   Ⓓ none of these

24. In Energy (E)-Velocity (V)-Time (T) system, the dimensional formula of length is

Ⓐ VT   Ⓑ VT²   Ⓒ V²T   Ⓓ none of these

25. While calculating a potential difference across a resistor by using formula V = I.R, the percentage error in current I be 1 percent and in resistance (R) be 0.5 percent, then maximum percentage error of potential difference is

Ⓐ 1   Ⓑ 2   Ⓒ 1.5   Ⓓ 2.5

Chemistry

26. The weight of oxygen in one mole each of Fe_2O_3 and FeO is in the simple ratio of

Ⓐ 3 : 2   Ⓑ 1 : 2   Ⓒ 2 : 1   Ⓓ 3 : 1

27. A sample ammonium phosphate $[(NH_4)_3PO_4]$ contains 6.36 moles of hydrogen atoms. The number of moles of oxygen atoms in the sample is (atomic mass : N = 14, H = 1, P = 31, O = 16)

Ⓐ 4.24 mole   Ⓑ 2.12 mole   Ⓒ 5.45 mole   Ⓓ 3.36 mole

28. The number of atoms present in a 0.635 gm of Cu is [$N_A = 6.02 \times 10^{23}$ and atomic mass of copper = 63.5]

Ⓐ 6.02×10^{22} Ⓑ 6.02×10^{20} Ⓒ 6.02×10^{21} Ⓓ 6.02×10^{19}

29. A signature, written in carbon pencil weighs 1.2 mg. What number of carbon atoms present in the signature [atomic mass of carbon = 12]?

Ⓐ 6.02×10^{22} Ⓑ 6.02×10^{20} Ⓒ 6.02×10^{21} Ⓓ 6.02×10^{19}

30. The number of significant figures in 6.02×10^{23} is

Ⓐ 3   Ⓑ 4   Ⓒ 5   Ⓓ 6

31. The maximum number of molecules present in

Ⓐ 15 L H_2 gas at STP   Ⓑ 5 L N_2 gas at STP

Ⓒ 0.5 gm of H_2 gas   Ⓓ 10 gm of O_2 gas

32. The mass of 112 ml of CH_4 gas at STP [atomic mass : C = 12, H = 1] is

Ⓐ 0.08 gm   Ⓑ 0.8 gm   Ⓒ 0.16 gm   Ⓓ 0.016 gm

33. 2 gm hydrogen is producing water and hydrogen peroxide separately. Keeping hydrogen constant the ratio of oxygen in water and hydrogen peroxide is

Ⓐ 1 : 2   Ⓑ 2 : 3   Ⓒ 3 : 4   Ⓓ 2 : 5

34. Consider the reaction $N_2 + 3H_2 \rightarrow 2NH_3$. What mass of NH_3 will be produced when 5.6 gm N_2 gas reacts completely with H_2? [N = 14, H = 1]

Ⓐ 11.4 gm   Ⓑ 10.2 gm   Ⓒ 6.8 gm   Ⓓ 17.4 gm

35. In the reaction $N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$ which of the following statement is wrong when 150 ml H_2 gas is reacting?

Ⓐ 100 ml N_2 will react completely

Ⓑ 100 ml NH_3 will be the final product

Ⓒ 50 ml N_2 will react completely

Ⓓ Total volume of the reactant side is 200 ml

36. When 2 volume H_2 reacts with 1 volume O_2 to form water then the total unreacted volume of gas is

Ⓐ 0.25 volume   Ⓑ 1.5 volume   Ⓒ 0.125 volume   Ⓓ zero volume

37. If Avogadro number is 6.02×10^{23}, then the correct number of molecules in 0.016 gm O_2 is 3.01×10^X. What is the correct value of $\underline{'X'}$?   [O = 16]

Ⓐ 21   Ⓑ 19   Ⓒ 22   Ⓓ 20

38. One atomic mass unit is equal to

Ⓐ The mass of $\frac{1}{20}$th mass of one neon atom (20)

Ⓑ The mass of $\frac{1}{23}$th mass of one sodium atom (23)

Ⓒ the mass of $\frac{1}{6}$th mass of one lithium atom (6)

Ⓓ No option is correct

39. The correct option about 1 gm $CaCO_3$ (MW = 100) is

Ⓐ 3.01×10^{22} $CaCO_3$ molecules   Ⓑ 6.02×10^{21} $CaCO_3$ molecules

Ⓒ 0.1 mole $CaCO_3$ molecules   Ⓓ 3.01×10^{21} $CaCO_3$ molecules

40. Which of the following is the highest number of moles among the given options ? [Cl = 35.5]

Ⓐ 0.01 mol Cl_2 Ⓑ 0.355 gm Cl_2

Ⓒ 0.071 gm Cl_2 Ⓓ 6.02×10^{20} Cl_2 molecules

41. Zetta $= 10^X$ and Yocto $= 10^Y$. The value of (X + Y) is

Ⓐ + 3   Ⓑ + 6   Ⓒ –3   Ⓓ –6

42. The isotopes and their percentage data are given below.

Isotope	Percentage of abundance
$_{18}Ar^{36}$	7.1%
$_{18}Ar^{38}$	16.3%
$_{18}Ar^{40}$	76.6%

What will be the correct atomic mass of argon ?

Ⓐ 40.40   Ⓑ 39.67   Ⓒ 39.39   Ⓓ 40.49

43. If Avogadro number is 6.02×10^{23}, then how many electrons are present in 0.05 gm hydrogen moleccules?

Ⓐ 301×10^{21} Ⓑ 301×10^{20} Ⓒ 301×10^{19} Ⓓ 301×10^{22}

44. Correct order of percentage of oxygen in the given compounds is $[N = 14, O = 16]$

Ⓐ $N_2O > NO > NO_2$ Ⓑ $NO_2 > NO > N_2O$ Ⓒ $N_2O > NO_2 > NO$ Ⓓ $NO_2 > N_2O > NO$

45. Percentage of oxygen in H_2SO_4 is $[S = 32, O = 16, H = 1]$

Ⓐ 68.5%   Ⓑ 65.3%   Ⓒ 62.3%   Ⓓ 67.4%

46. What is the number of atoms in 20 gm $CaCO_3$ $(MW = 100)$ Avogadro number $= 6.02 \times 10^{23}$?

Ⓐ 6.02×10^{21} Ⓑ 6.02×10^{22} Ⓒ 6.02×10^{23} Ⓓ 6.02×10^{20}

47. A container has 3.01×10^{22} dry and pure oxygen gas. 560 ml of pure and dry hydrogen gas is introduced inside that container. If they are not reacting with each other then what is the final munber of moles of gas in that container?

Ⓐ 0.65 mole   Ⓑ 0.065 mole   Ⓒ 0.75 mole   Ⓓ 0.075 mole

48. Which of the following represents the highest number of mole value $[Cl = 35.5, N = 14, O = 16,$ Avagadro number $= 6.02 \times 10^{23}]$?

Ⓐ 0.355 gm Cl_2 Ⓑ 1.204×10^{23} O_2 molecules

Ⓒ 0.112 L N_2 gas at STP   Ⓓ (a), (b), (c) all are equal values

49. A hydrate of Na_2SO_3 has 50% water by mass. The correct formula of the hydrate is $[Na = 23, S = 32, O = 16, H = 1]$

Ⓐ $Na_2SO_3.5H_2O$ Ⓑ $Na_2SO_3.6H_2O$ Ⓒ $Na_2SO_3.7H_2O$ Ⓓ $Na_2SO_3.2H_2O$

50. In which of the following compound, the percentage of carbon (12) is more than 40% ? $[C = 12, F = 18, O = 16, H = 1, N = 14]$

Ⓐ CF_4 Ⓑ CO

Ⓒ $CO(NH_2)_2$ Ⓓ No option is correct

Mathematics

51. If A = {1, 2, 3, 4, 5}, B = {2, 4, 6}, C = {3, 4, 6} then $(A \cup B) \cap C$ is

Ⓐ {3, 4, 6}   Ⓑ {1, 2, 3}   Ⓒ {1, 4, 3}   Ⓓ None of these

52. If P is the set of all parallelograms and T is the set of all trapeziums, then $P \cap T$ is

Ⓐ P　　　　　Ⓑ T　　　　　Ⓒ ϕ　　　　　Ⓓ None of these

53. Which of the following cannot be the number of elements in the power set of any finite set?

Ⓐ 26　　　　　Ⓑ 32　　　　　Ⓒ 8　　　　　Ⓓ 16

54. A survey shows that 63% of the Americans like cheese whereas 76% like apples. If x% of the Americans like both cheese and apples, then

Ⓐ $x = 39$　　　Ⓑ $x = 63$　　　Ⓒ $39 \le x \le 63$　　　Ⓓ None of these

55. If $n(A \times B) = 45$, then $n(A)$ cannot be

Ⓐ 15　　　　　Ⓑ 17　　　　　Ⓒ 5　　　　　Ⓓ 9

56. If R is a relation from a finite set A having m elements to a finite set B having n elements, then the number of relations from A to B is

Ⓐ 2^{mn}　　　Ⓑ $2^{mn}-1$　　　Ⓒ 2mn　　　Ⓓ m^n

57. Let R be a relation from a set A to a set B, then

Ⓐ $R = A \cup B$　　Ⓑ $R = A \cap B$　　Ⓒ $R \subseteq A \times B$　　Ⓓ $R \subseteq B \times A$

58. The set of intelligent students in a class is

Ⓐ a null set　　　　　　　　　Ⓑ a singleton set

Ⓒ a finite set　　　　　　　　Ⓓ not a well -defined collection

59. Which of the following is the empty set

Ⓐ $\{x : x$ is a real number and $x^2 - 1 = 0\}$　　Ⓑ $\{x : x$ is a real number and $x^2 + 1 = 0\}$

Ⓒ $\{x : x$ is a real number and $x^2 - 9 = 0\}$　　Ⓓ $\{x : x$ is a real number and $x^2 = x + 2\}$

60. If $A = \{x : -3 < x < 3, x \in Z\}$ then the number of subsets of A is

Ⓐ 120　　　　　Ⓑ 30　　　　　Ⓒ 31　　　　　Ⓓ 32

61. The set $A = \{x : x$ is a positive prime $< 10\}$ in the tabular form is

Ⓐ $\{1,2,3,5,7\}$　　Ⓑ $\{1,3,5,7,9\}$　　Ⓒ $\{2,3,5,7\}$　　Ⓓ $\{1,3,5,7\}$

62. If $f(x) = x^3 - (1/x^3)$, then $f(x) + f(1/x)$ is equal to

Ⓐ $2x^3$　　　Ⓑ $2/x^3$　　　Ⓒ 0　　　Ⓓ 1

63. If $f(x) = x^2 + 2, x \in R$, then the range of $f(x)$ is

Ⓐ $[2, \infty)$　　Ⓑ $(-\infty, 2]$　　Ⓒ $(2, \infty)$　　Ⓓ $(-\infty, 2) \cup (2, \infty)$

64. Two functions *f* and *g* are said to be equal if

Ⓐ the domain of *f* = the domain of *g* Ⓑ the co-domain of *f* = the co-domain of *g*

Ⓒ *f*(*x*) = *g*(*x*) for all *x* Ⓓ all of above

65. The domain of the function f(x) = $1/(x^2 - 3x + 2)$ is

Ⓐ {1, 2} Ⓑ R Ⓒ $R - \{1, 2\}$ Ⓓ $R - \{1, -2\}$

66. If X = $\{4^n - 3n - 1 : n \in N\}$ and $Y = \{9(n - 1) : n \in N\}$, then $X \cup Y$ is equal to

Ⓐ X Ⓑ Y Ⓒ N Ⓓ None of these

67. Let $A = \{x : x$ is a multiple of 3$\}$ and $B = \{x : x$ is a multiple of 5$\}$. Then $A \cap B$ is given by

Ⓐ {3, 6, 9, ...} Ⓑ {5, 10, 15, 20, ...} Ⓒ {15, 30, 45, ...} Ⓓ None of these

68. In a class of 30 pupils 12 take needls work, 16 take physics and 18 take history. If all the 30 students take at least one subject and no one takes all three, then the number of pupils taking 2 subjects is

Ⓐ 16 Ⓑ 6 Ⓒ 8 Ⓓ 20

69. If *A* is a finite set having n elements, then $P(A)$ has

Ⓐ $2n$ elements Ⓑ 2^n elements Ⓒ n elements Ⓓ None of these

70. Let $n(U) = 700$, $n(A) = 200$, $n(B) = 300$ and $n(A \cap B) = 100$. Then, $n(A^c \cap B^c) =$

Ⓐ 400 Ⓑ 600 Ⓒ 300 Ⓓ 200

71. Range of the function $f(x) = 9 - 7 \sin x$ is

Ⓐ (2, 16) Ⓑ [2, 16] Ⓒ [-1, 1] Ⓓ (2, 16]

72. The range of $f(x) = \dfrac{x}{1 + x^2}$ is

Ⓐ $\left[-\dfrac{1}{2}, \dfrac{1}{2}\right]$ Ⓑ $\left(-\dfrac{1}{2}, \dfrac{1}{2}\right)$ Ⓒ $\left[-\dfrac{1}{2}, 0\right) \cup \left(0, \dfrac{1}{2}\right]$ Ⓓ [-1, 1]

73. A function is called even function if its graph is symmetrical w.r.t.

Ⓐ Origin Ⓑ $x = 0$ Ⓒ $y = 0$ Ⓓ line $y = x$

74. Which of the following functions is odd?

Ⓐ $\tan x$ Ⓑ $\cos x$ Ⓒ $\sin(x^2 + 1)$ Ⓓ $x + x^2$

75. Which of the following relation is a function from *A* to *B* where $A = \{1, 2, 3, 4\}$ and $B = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$?

Ⓐ {(1, 4), (2,6), (1,5), (3, 9)} Ⓑ {(3, 3), (2,1), (1,2), (2, 3)}

Ⓒ {(1, 2), (2,2), (3,2), (4, 2)} Ⓓ {(3, 1), (3,2), (3,3), (3, 4)}

Biology

76. Scientific study of diversity of organisms and their evolutionary relationships is—
    Ⓐ Morphology   Ⓑ Anatomy   Ⓒ Taxonomy   Ⓓ Systematics

77. Peritrichous bacteria have flagella
    Ⓐ All over the body   Ⓑ At one end   Ⓒ At both ends   Ⓓ None

78. Mixotrophic nutrition is present in
    Ⓐ *Navicula*   Ⓑ *Amoeba*   Ⓒ *Paramoecium*   Ⓓ *Euglena*

79. What is the common name of Sphagnum?
    Ⓐ Peat moss   Ⓑ Turf moss   Ⓒ Bog moss   Ⓓ All of the above

80. Which one is called a living fossil?
    Ⓐ *Ginkgo*   Ⓑ *Cycas*   Ⓒ *Metasequoia*   Ⓓ All of the above

81. Which of the following is not a feature of annelids?
    Ⓐ Metameric segmentation   Ⓑ Nephridia
    Ⓒ Pseudocoelom   Ⓓ Clitellum

82. In which of the following animals, respiration occurs without any respiratory organ?
    Ⓐ Frog   Ⓑ Fish   Ⓒ Cockroach   Ⓓ Earthworm

83. The basic unit of classification is—
    Ⓐ Species   Ⓑ Kingdom   Ⓒ Division   Ⓓ Order

84. The term 'Chordata' is a—
    Ⓐ Kingdom   Ⓑ Phylum   Ⓒ Class   Ⓓ Order

85. The bacteria that can reside in extreme salty areas are called
    Ⓐ Halophiles   Ⓑ Methanogens
    Ⓒ Basophiles   Ⓓ Thermoacidophiles

86. Which of the following organisms completely lack cell wall, are the smallest living cells known and can survive without oxygen?
    Ⓐ Mycoplasma   Ⓑ Euglenoids   Ⓒ Slime moulds   Ⓓ All of these

87. Which of the following are called vascular cryptogams?
    Ⓐ Pteridophytes   Ⓑ Bryophytes   Ⓒ Gymnosperms   Ⓓ Algae

88. Horse tails and ferns belong to
    Ⓐ Gymnosperms   Ⓑ Bryophytes   Ⓒ Mosses   Ⓓ Pteridophytes

89. Cnidoblasts help in—

Ⓐ Movement　　　　　　　Ⓑ Paralysing the prey

Ⓒ Reproduction　　　　　　Ⓓ Sensitivity

90. The class consisting of the first jawless fishes, all of which are extinct now is—

Ⓐ Ostracodermi　　Ⓑ Cyclostomata　　Ⓒ Chondrichthyes　Ⓓ Osteichthyes

91. Which of the following is the correct hierarchy of taxonomic categories, from broadest to the most specific?

Ⓐ Family — Class — Order — Phylum — Kingdom

Ⓑ Kingdom — Phylum — Class — Order — Family

Ⓒ Phylum — Kingdom — Order — Family — Class

Ⓓ Kingdom — Order — Class — Phylum — Family

92. A binomial nomenclature consists of—

Ⓐ Generic name and Phyla　　　　　Ⓑ Class and Phyla

Ⓒ Generic name and specific epithet　Ⓓ Phyla and Kingdom

93. Red tides in the sea are caused by—

Ⓐ Dinoflagellates　Ⓑ Euglenoids　　Ⓒ Slime moulds　　Ⓓ Protozoans

94. Mushrooms belong to—

Ⓐ Phycomycetes　　　　　　Ⓑ Ascomycetes

Ⓒ Basidiomycetes　　　　　Ⓓ Deuteromycetes

95. Name the pteridophyte given in the diagram below—
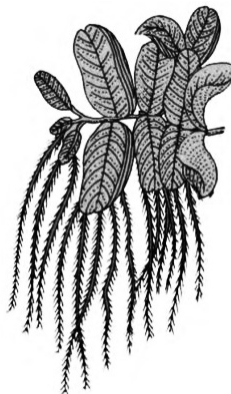
Ⓐ *Selaginella*　　Ⓑ Fern　　　Ⓒ *Salvinia*　　Ⓓ *Equisetum*

96. The sporophyte of Bryophyte are differentiated into foot, seta and___
Ⓐ body   Ⓑ capsule   Ⓒ protonema   Ⓓ gemmae

97. A gymnosperm with unbranched stem is—
Ⓐ *Cycas*   Ⓑ *Pinus*   Ⓒ *Cedrus*   Ⓓ *Ginkgo*

98. The insects producing honey and silk are—
Ⓐ *Bombyx* and *Apis*, respectively   Ⓑ *Anopheles* and *Culex*, respectively
Ⓒ *Culex* and *Aedes*, respectively   Ⓓ *Apis* and *Bombyx*, respectively

99. Water vascular system is observed in—
Ⓐ Coelenterates   Ⓑ Nematodes   Ⓒ Echinoderms   Ⓓ Molluscs

100. The feature(s) that are characteristic of a chordate are
Ⓐ Presence of a notochord   Ⓑ Presence of dorsal nerve chord
Ⓒ Presence of pharygeal gill slits   Ⓓ All of the above

Space For Rough Works