Monthly Progressive Test

Class: X

Subject: PCMB

Academic Excellence Programme
TECHNO ACE

Test Booklet No.: MPT-02 **Test Date: 07082025**

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 MPT02 07082025.
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. What happens to the total resistance when resistors are connected in series?
   Ⓐ Increases Ⓑ Decreases Ⓒ Remains the same Ⓓ Becomes zero

2. The equivalent resistance of 3 Ω, 6 Ω, and 9 Ω connected in parallel is:
   Ⓐ 18 Ω Ⓑ 1.8 Ω Ⓒ 9 Ω Ⓓ 0.5 Ω

3. In a series circuit, the current:
   Ⓐ is different through each resistor Ⓑ depends on the number of resistors
   Ⓒ is same in all components Ⓓ increases with resistance

4. The heat produced by a current-carrying conductor is directly proportional to:
   Ⓐ Time Ⓑ Square of current Ⓒ Resistance Ⓓ All of these

5. Which device works on the heating effect of electric current?
   Ⓐ Electric bell Ⓑ Transformer Ⓒ Electric iron Ⓓ Generator

6. If the current in a wire is 2 A and resistance is 4 Ω, the heat produced in 5 seconds is:
   Ⓐ 40 J Ⓑ 80 J Ⓒ 20 J Ⓓ 10 J

7. Fuse wire is always connected in:
   Ⓐ Parallel Ⓑ Series Ⓒ Across the supply Ⓓ None

8. Electric power is defined as:
   Ⓐ $V \times R$ Ⓑ $I \times R$ Ⓒ $V \times I$ Ⓓ I / R

9. Power consumed by a 100 W bulb in 10 hours is:
   Ⓐ 1 kWh Ⓑ 10 kWh Ⓒ 1000 W Ⓓ 0.1 kWh

10. The defect in which distant objects are not visible clearly is:
    Ⓐ Hypermetropia Ⓑ Astigmatism Ⓒ Cataract Ⓓ Myopia

■ Assertion-Reason type Questions

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

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

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

Ⓒ Assertion is true but the Reason is false.

Ⓓ Assertion is False and Reason is true.

11. **Assertion:** In a series combination, the total resistance is more than the highest resistance in the circuit.
    Reason: In series, current remains the same and resistances add up.

12. **Assertion:** In a parallel circuit, total resistance decreases with each added resistor.
    Reason: Current gets divided among branches, and total current increases.

13. **Assertion:** A 100 W bulb gives more light than a 60 W bulb when connected to the same voltage.
    Reason: Power is directly proportion to resistance at constant voltage.

14. **Assertion:** A fuse is used to protect circuits from damage due to overcurrent.
Reason: A fuse wire has a low melting point and high resistance.

■ **Case Based Questions**

Case 1 : 3 resistors of 2 Ω, 3 Ω, and 5 Ω are connected in series.

15. Total resistance is :
Ⓐ 10 Ω Ⓑ 5 Ω Ⓒ 2 Ω Ⓓ 0.83 Ω

16. If 2 A current flows through the circuit, voltage across 3 Ω resistor is:
Ⓐ 6 V Ⓑ 2 V Ⓒ 1.5 V Ⓓ 12 V

17. Heat produced by the 5 ohm resistor in 2 seconds
Ⓐ 40 Ⓑ 20 Ⓒ 30 Ⓓ 50

Case 2 : 3 resistors of 6 Ω, 3 Ω, and 2 Ω are connected in parallel.

18. The total resistance is:
Ⓐ 1 Ω Ⓑ 11 Ω Ⓒ 12 Ω Ⓓ 3 Ω

19. Which advantage is offered by a parallel connection?
Ⓐ Same current Ⓑ Same resistance
Ⓒ Independent operation Ⓓ More power used

20. If potential difference accross 3 ohm is 18 volts then potential difference accross 6 ohm resistor is
Ⓐ 9 Ⓑ 18 Ⓒ 36 Ⓓ 27

21. A current of 2 A flows through a wire for 5 seconds. What is the total charge that flows?
Ⓐ 10 C Ⓑ 7 C Ⓒ 2.5 C Ⓓ 5 C

22. Which of the following combinations gives the minimum resistance?
Ⓐ 4 Ω and 6 Ω in series Ⓑ 4 Ω and 6 Ω in parallel Ⓒ 2 Ω and 2 Ω in series Ⓓ 10 Ω and 10 Ω in series

23. The electric power consumed by a device is 100 W when connected to 200 V. What is the current through it?
Ⓐ 2 A Ⓑ 0.5 A Ⓒ 1 A Ⓓ 5 A

24. Which of the following is responsible for the twinkling of stars?
Ⓐ Reflection of light Ⓑ Dispersion of light
Ⓒ Refraction through atmosphere Ⓓ Scattering of light

25. A device that protects an electric circuit from overloading is called :
Ⓐ Transformer Ⓑ Resistor Ⓒ Fuse Ⓓ Generator

Chemistry

26. The compound obtained on reaction of iron with steam is/are—
Ⓐ Fe_2O_3 Ⓑ Fe_3O_4 Ⓒ FeO Ⓓ Fe_2O_3 and Fe_3O_4

27. An element 'X' reacts with O_2 to give a compound with a high melting point. This compound is also soluble in water. The element 'X' is likely to be:
Ⓐ iron Ⓑ Calcium Ⓒ Catbion Ⓓ Silicon

28. $Cu + xHNO_3 \longrightarrow Cu(NO_3)_2 + yNO_2 + 2H_2O$. The values of 'x' and 'y' are:

Ⓐ 3 and 5 Ⓑ 8 and 6 Ⓒ 4 and 2 Ⓓ 7 and 1

29. In which of the following the identity of initial substance remains unchanged?

Ⓐ Curdling of milk
Ⓑ Formation of crystals process of crystallisation
Ⓒ Fermentation of grapes
Ⓓ Digestion of food

30. Identify x, y and z in the following reaction

$$2KClO_3(x) \xrightarrow{(y)} 2KCl(x) + 3O_2(z)$$

Ⓐ x = gas; y = reactium condition, z = gas

Ⓑ x = solid, y = liquid, z = gas

Ⓒ x = no. of moles of $KClO_3$; y = reaction condition; z = no of molecule of O_2

Ⓓ x = physical state of $KClO_3$ and KCl
y = reaction condition
z = physical state of O_2

31. What happens when dilute hydrochloric acid is added to iron filings? Tick the correct answer.

Ⓐ Hydrogen gas and iron chloride are produced
Ⓑ Chlorine gas and iron hydroxide are produced
Ⓒ No reaction takes place
Ⓓ Iron salt water are produced

32. An element 'X' forms a solid oxide which dissolves in water forming solution which turns blue litmus paper red, 'X' is

Ⓐ Ca Ⓑ Cu Ⓒ Fe Ⓓ 'P'

33. The substance which on treating with chlorine, yields, bleaching powder is:

Ⓐ quick lime
Ⓑ lime stone
Ⓒ slaked lime
Ⓓ gypsum

34. Milk of magnesia is

Ⓐ Solid magnesium oxide
Ⓑ Solid magnesium hydroxide
Ⓒ Suspension of magnesium hydroxide
Ⓓ Insoluble magnesium carbonate

35. The difference of molecules of water in gypsium and plaster of parises

Ⓐ $\frac{5}{2}$ Ⓑ 2 Ⓒ $\frac{3}{2}$ Ⓓ $\frac{1}{2}$

36. $X\,Al + NaOH + 2H_2O \longrightarrow 2NaAlO_2 + ZH_2\uparrow$

In the above reaction x, y and z are respectively.

Ⓐ 2, 3, 2 Ⓑ 3, 3, 2 Ⓒ 2, 2, 3 Ⓓ 3, 2, 2

37. Which salt is formed by the reaction between strong acid and weak base,

Ⓐ CH_3COONa Ⓑ K_2SO_4 Ⓒ $(NH_4)_2SO_4$ Ⓓ CH_3COONH_4

38. The correct formula of Baking soda is

Ⓐ Na_2CO_3 Ⓑ $Mg(HCO_3)_2$ Ⓒ $NaHCO_3$ Ⓓ $Ca(HCO_3)_2$

39. Which of the following is/are double salt?

Ⓐ $Zn(NO_3)_2$ Ⓑ Molir's Salt Ⓒ Potash Alum Ⓓ Both B & C

40. 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 of CaC_2 Ⓓ Yellow coloured $CaCO_3$

Assertion and Reason : (Q. 41 – 44)

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

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.

41. **Assertion (A) :** Magnesium hydroxide can change the colour of phenolphthalein indicator.

Reason (R) : Phenolphthalein indicator faces colour changes in alkaline medium

Ⓐ a Ⓑ b Ⓒ c Ⓓ d

42. **Assertion (A) :** Conc. H_2SO_4 should be added slowly into water to get dilute acid with constant cooling.

Reason (R) : Dilution of conc. H_2SO_4 is highly exothermic reaction.

Ⓐ a Ⓑ b Ⓒ c Ⓓ d

43. **Assertion (A) :** PH = 11, strongly basic, PH = 7 is neutral.

Reason (R) : PH = 5 is weak acid and PH = 2 is strongly acidic

Ⓐ a Ⓑ b Ⓒ c Ⓓ d

44. **Assertion (A) :** Copper sulphate solution turns blue litmus red

Reason (R) : Copper sulphate is salt of strong acid H_2SO_4, weak box $Cu(OH)_2$, therefor acidic is nature

Ⓐ a Ⓑ b Ⓒ c Ⓓ d

Case Base Question (Q45 to Q47)

Read the passage carefully and answer the following questions from (i) to (v):

POP is plater of Paris is a calcium sulphate hemihydrate. Hemihydrate contains half molecule of water of crystallisation. It is represented by formula $CaSO_4 \cdot \frac{1}{2}H_2O$. This structure of half water molecule means that one water molecule is shared by two formula units of $CaSO_4$. The name plaster of Paris was given to this compound, because, for the first time, it was made from gypsum which was mainly found in Paris.

45. Plaster of Paris is known for its hardening. It is due to:

Ⓐ releasing CO_2 Ⓑ Converting into $CaCO_3$

Ⓒ Combining with water Ⓓ Loosing out water

46. Choose the incorrect statement

Ⓐ POP is used to ornate designs on walls and ceilings.

Ⓑ On heating gypsum above 373K, $CaSO_4$ is obtained

Ⓒ Dead burnt plaster is $CaSO_4 \cdot 2H_2O$

Ⓓ The setting of plaster is due to its hydration into gypsum.

47. We can obtain plaster of paris by:

Ⓐ Adding water to calcium sulphate

Ⓑ Adding sulphuric acid to calcium hydroxide

Ⓒ Heating gypsum into a very high temperature

Ⓓ Heating gypsum to 100°C

Case Base Question (Q48 to Q50)

You might have observed a green coating on coins on statues made of copper. This happens because metal undergoes a process called corrosion. Also, you have observed a bad smell emanating, from food containing fats or oils due to rancidity.

48. Which of the following is not a method of preventing corrosion of metals?

Ⓐ Galvanization

Ⓑ Exposure to moisture

Ⓒ Painting the metal surface

Ⓓ Oiling the metal surface

49. Green colour compound is basic copper carbonate. The chemical formula is

Ⓐ $CuO \cdot Cu(OH)_2$ Ⓑ $CuCO_3 \cdot Ca(OH)_2$ Ⓒ $CuCO_3 \cdot Cu(OH)_2$ Ⓓ $ZnCO_3 \cdot Cu(OH)_2$

50. Corrosion and rancidity are due to which type of chemical reaction?

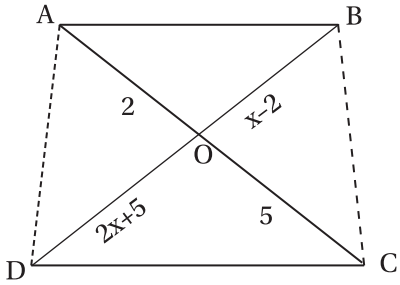
Ⓐ Decomposition Ⓑ Reduction Ⓒ Oxidation Ⓓ Displacement

Mathematics

51. If (p+q) th and (p-q) th terms of an A. P. are respectively m and n, then the p th term is

Ⓐ $\frac{m+n}{2}$ Ⓑ $\sqrt{mn}$ Ⓒ $m+n$ Ⓓ mn

52. In trapezium ABCD if $AB \| CD$, then value of x is



Ⓐ 22 Ⓑ 23 Ⓒ 20 Ⓓ 15

53. The sum of three numbers which are in A. P. is 33 and their product is 792. The numbers are

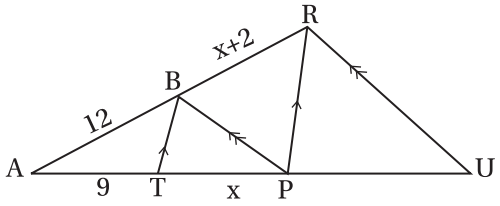
Ⓐ 18, 11, 4 Ⓑ 14, 11, 8 Ⓒ 15, 11, 7 Ⓓ none of these

54. Find the A.P. whose 7th term and 51 th term are –3 and –355 respectively.

Ⓐ 29, 37, 45, ... Ⓑ 45, 37, 29, ...

Ⓒ 58, 50, 42, ... Ⓓ none of these

55. In triangle ARU, BT is parallel to RP and BP is parallel to RU. Find TP.



Ⓐ 2 Ⓑ 4 Ⓒ 6 Ⓓ 8

CASE STUDY BASED QUESTION- I (Q.56- Q. 58):

Sarala wants to buy an electric car and plans to take loan from a bank for her electric car. She repays her total loan of ₹ 321600 by paying every month starting with the first instalment of ₹ 2000 and it increases the instalment by ₹ 200 every month

Based on the above information, answer the following questions:

56. The amount paid by her in 25th instalment is

Ⓐ ₹ 6800 Ⓑ ₹ 3500 Ⓒ ₹ 4800 Ⓓ ₹ 6600

57. In how many instalments, she clears her total bank loan

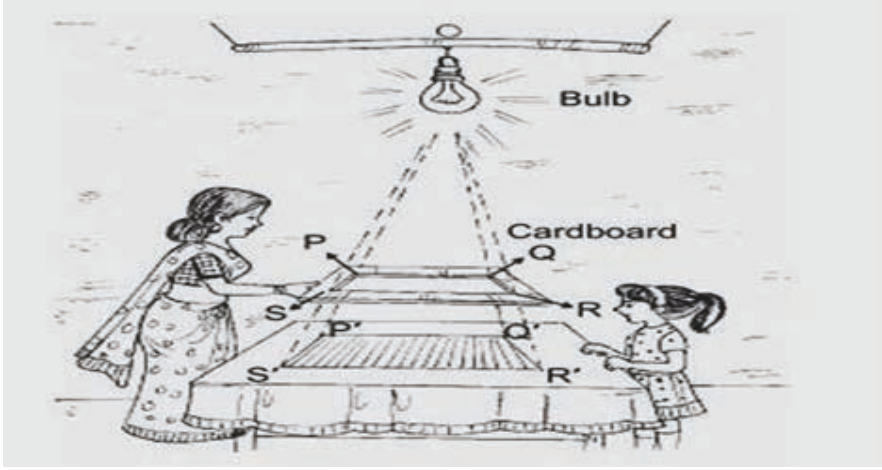
Ⓐ 82 Ⓑ 80 Ⓒ 48 Ⓓ 16

58. Find the sum of the first seven instalments.

Ⓐ ₹ 14000 Ⓑ ₹ 13600 Ⓒ ₹ 10400 Ⓓ ₹ 18200

CASE STUDY BASED QUESTION- II (Q.59- Q. 61):

Suparna placed a light bulb at a point O on the ceiling and directly below it placed a table. She cuts a quadrilateral PQRS from a plane cardboard and place this parallel to the ground between the lighted bulb and the table. Then a shadow of PQRS is cast on the table as P'Q'R'S'. Quadrilateral P'Q'R'S' is an enlargement of the quadrilateral PQRS with scale factor 1: 3. Given that PQ = 2.5 cm, QR= 3.5 cm, RS= 3.4 cm and PS = 3.1 cm; $\angle P = 115°$, $\angle Q = 95°$, $\angle R = 65°$ and $\angle S = 85°$.



Based on the given information, answer the following questions:

59. The length of R'S' is

Ⓐ 3.4 cm Ⓑ 10.2 cm Ⓒ 6.8 cm Ⓓ 9.5 cm

60. The ratio of sides P'Q' to Q'R' is

Ⓐ 5 : 7 Ⓑ 7 : 5 Ⓒ 7 : 2 Ⓓ 2 : 7

61. The sum of the lengths Q'R' and P'S' is

Ⓐ 12.3 cm Ⓑ 6.7 cm Ⓒ 19.8 cm Ⓓ 9 cm

Assertion Reason Based Questions (Q 62 – Q. 65) :

Directions: In each of the questions given below, there are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the codes provided below:

a. Both A and R are true and R is the correct explanation of A.

b. Both A and R are true but R is not the correct explanation of A.

c. A is true but R is false.

d. A is false but R is true.

62. **Assertion (A) :** 184 is the 50th term of the sequence 3, 7, 11,.....

Reason (R) : The nth term of A. P .is given by a_n=a+(n–1) d

Ⓐ a Ⓑ b Ⓒ c Ⓓ d

63. **Assertion (A) :** Sum of first hundred even natural numbers divisible by 5 is 5500.

Reason (R) : Sum of first n terms of an A.P is given by $S_n = [a + l]$, l is last term.

Ⓐ a Ⓑ b Ⓒ c Ⓓ d

64. **Assertion (A) :** D and E are points on the sides AB and AC respectively of a ΔABC such that $DE \| BC$, then the value of x is 4, when AD = x cm, DB = (x –2) cm, AE = (x + 2) cm and EC = (x –1) cm.

Reason (R) : If a line is parallel to one side of a triangle, then it divides the other two sides in the same ratio.

Ⓐ a Ⓑ b Ⓒ c Ⓓ d

65. **Assertion (A) :** D and E are points on the sides AB and AC respectively of a ΔABC such that AD = 5.7cm, DB = 9.5cm, AE = 4.8 cm and EC = 8 cm then DE is not parallel to BC.

Reason (R) : If a line divides any two sides of a triangle in the same ratio then it is parallel to the third side.

Ⓐ a Ⓑ b Ⓒ c Ⓓ d

66. Suppose a, b denotes the distinct roots of the quadratic polynomial $x^2 + 20x - 2020$ and suppose c, d denote the distinct roots of the quadratic polynomial $x^2 - 20x + 2020$. Then the value of $ac(a - c) + ad(a - d) + bc(b - c) + bd(b - d)$ is

Ⓐ 0 Ⓑ 8000 Ⓒ 8080 Ⓓ 16000

67. Let a and b be the roots of the equation $x^2 - 10cx - 11d = 0$ and those of $x^2 - 10ax - 11b = 0$ are c, d then, find the value of a + b+ c+ d, when a, b, c, d are all distinct.

Ⓐ 1200 Ⓑ 1210 Ⓒ 1220 Ⓓ 1110

68. The value of k such that the sum of the square of the roots of the quadratic equation $x^2 + (3 - k)x + 2 = k$ has the least value

Ⓐ $\frac{4}{9}$ Ⓑ 1 Ⓒ $\frac{15}{8}$ Ⓓ 2

69. The sum of n terms of 2 arithmetic progressions are in the ratio of $(7n + 1) : (4n + 27)$. The ratio of their 11th terms is

Ⓐ 148 : 111 Ⓑ 111 : 148 Ⓒ 121 : 148 Ⓓ 148 : 121

70. In an A. P. $S_p = q$, $S_q = p$, where S_r, denotes the sum of first r terms, then S_{p+q} is equal to

Ⓐ 0 Ⓑ $-(p + q)$ Ⓒ $(p + q)$ Ⓓ pq

71. Let $a_1, a_2, \ldots\ldots a_n$ be a given A.P. whose common difference is an integer and $S_n = a_1 + a_2 + \ldots\ldots + a_n$. If $a_1 = 1$, $a_n = 300$ and $15 \le n \le 50$, then the ordered pair (S_{n-4}, a_{n-4}) is equal to

Ⓐ (2480, 248) Ⓑ (2490, 249) Ⓒ (2490, 248) Ⓓ (2480, 249)

72. If the system of equations $4x + py = 21$ and $px - 2y = 15$ has unique solution, then which of the following could be the value of p?

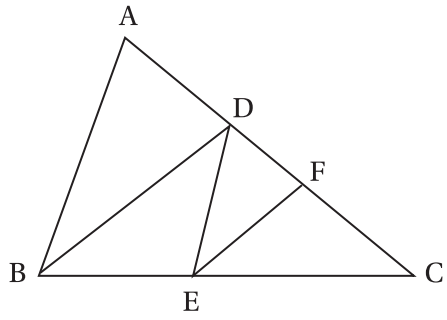
(i) 103 (ii) 105 (iii) 192 (iv) 197

Ⓐ Both (i) & (ii) Ⓑ Both (iii) & (iv) Ⓒ (i), (ii) & (iii) Ⓓ All of these

73. In triangle ABC, E divides AB in the ratio 3: 1 and F divides BC in the ratio 3: 2, then the ratio of areas of triangle BEF and triangle ABC is

Ⓐ 3 : 5 Ⓑ 3 : 10 Ⓒ 1 : 5 Ⓓ 3 : 20

74. In the given figure, ΔABC has points D and F in $\overline{AC}$ and point E in $\overline{BC}$ such that $\overline{DE} \| AB$ and $\overline{EF} \| \overline{BD}$. If CF = 4 cm and AC = 9 cm, what is the length of $\overline{DC}$?



Ⓐ 7cm Ⓑ 6cm Ⓒ 5cm Ⓓ 4cm

75. Let ABC be a triangle with $\angle C = 90°$. Draw CD perpendicular to AB. Choose points M and N on sides AC and BC respectively such that DM is parallel to BC and DN is parallel to AC. If DM = 5, DN = 4, then AC and BC are respectively equal to

Ⓐ $\frac{41}{4}, \frac{41}{5}$ Ⓑ $\frac{39}{4}, \frac{39}{5}$ Ⓒ $\frac{38}{4}, \frac{38}{5}$ Ⓓ $\frac{37}{4}, \frac{37}{5}$

Biology

76. Choose the odd one out.

Ⓐ Chlorophyll molecules trap solar energy and get excited.

Ⓑ Water molecules are split, in the presence of sunlight, to produce molecular oxygen.

Ⓒ Carbon dioxide is reduced to carbohydrate.

Ⓓ Glucose is oxidised to produce energy.

77. Select the incorrect statement.

Ⓐ Bile is produced in the liver.

Ⓑ Bile neutralises the acidity of the food coming from the stomach.

Ⓒ Bile causes emulsification of proteins.

Ⓓ Bile contains no enzyme.

78. Choose the correctly matched pair:

Ⓐ Kidney – urination Ⓑ Renal vein – carries pure blood to kidney

Ⓒ Ureter – connects kidney to urinary bladder Ⓓ Urethra – brings impure blood to kidney

79. Choose the odd one out.

Ⓐ Pancreas Ⓑ Salivary gland

Ⓒ Liver Ⓓ Oesophagus

80. In which organ is the process of digestion completed?

Ⓐ Pancreas Ⓑ Liver Ⓒ Stomach Ⓓ Duodenum

81. The valve which prevents the backflow of blood from aorta to the left ventricle is _____

Ⓐ Mitral valve Ⓑ Tricuspid valve Ⓒ Semilunar valve Ⓓ None of the above

82. In which step of urine formation, does ADH play a major role?

Ⓐ Tubular secretion Ⓑ Concentration of urine

Ⓒ Selective reabsorption Ⓓ Ultrafiltration

83. Which of the following is not excreted through urine?

Ⓐ Water Ⓑ Urea Ⓒ Uric acid Ⓓ None of the above

84. The meninges protect _____

Ⓐ CNS Ⓑ Brain only

Ⓒ Spinal cord only Ⓓ Vertebral column and cranium

85. Which of the following hormones is not produced by the pituitary gland?

Ⓐ Growth Hormone Ⓑ Thyroid Stimulating Hormone

Ⓒ Adrenalin Ⓓ Vasopressin

86. Select the correct statement regarding the reason behind the bending of a stem towards light.

Ⓐ Unequal distribution of gibberellins in the leaves.

Ⓑ More concentration of auxin on the part facing the source of light.

Ⓒ Less concentration of auxin on the part facing the source of light.

Ⓓ Presence of ABA on the tip of the stem.

87. Which plant hormone stimulates transverse growth, but retards the longitudinal one ?

Ⓐ Gibberellin Ⓑ Cytokinin Ⓒ ABA Ⓓ Ethylene

88. A neuron which carries an impulse to the brain is called :

Ⓐ Sensory neuron Ⓑ Motor neuron

Ⓒ Mixed nerve Ⓓ Efferent neuron

89. Cranial nerves, spinal nerves and visceral nerves, together constitute

Ⓐ CNS Ⓑ PNS Ⓒ Reflex arc Ⓓ None of the above

90. In which of the following animals, pulmonary circulation is absent?

Ⓐ Fish Ⓑ Earthworm Ⓒ Tadpoles Ⓓ All of the above

The questions 91 to 94 have two statements – Assertion (A) and Reason (R). Of the two statements, mark the correct answer from the options given below:

A. Both A and R are true and R is the correct explanation of A.

B. Both A and R are true but R is not the correct explanation of A.

C. A is true but R is false.

D. A is false but R is true.

91. **Assertion :** Most of the reflex actions are controlled by spinal cord.

Reason : The spinal cord produces hormones to control reflex actions.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

92. **Assertion :** Ventricles have thicker walls than the atria.

Reason : Ventricles are the pumping chambers of heart.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

93. **Assertion :** Peristalsis occurs along the entire length of the alimentary canal.

Reason : Peristalsis starts in the buccal cavity.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

94. **Assertion :** The glucose prepared in photosynthesis is stored in the form of starch in leaves.

Reason : Alcohol is used to extract the chlorophyll of leaves during the starch test.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

Read the given passage and answer the following questions (95-97) :

Respiration is a multi step, enzyme mediated, biochemical process of oxidative breakdown of organic compounds,

inside living cells, to release small packets of energy. The organic compounds that undergo oxidative breakdown in respiration are called respiratory substrates. The most common respiratory substrate is glucose. Glucose is formed by the hydrolysis of stored carbohydrares, like starch in plants and glycogen in animals.

95. What happens when pyruvic acid is produced in skeletal muscle cells during a strenuous activity?

Ⓐ It is converted to ethanol and lactic acid in the cytoplasm

Ⓑ It is converted to ethanol and lactic acid in the mitochondria

Ⓒ It is converted to CO_2 and H_2O in the mitochondria

Ⓓ It is converted to lactic acid in the cytoplasm

96. The two lungs are estimated to have about 300 million alveoli each. Such a large number of alveoli _____

Ⓐ increases the surface area for transportation of O_2 from the blood capillaries to the alveoli

Ⓑ increases the surface area for transportation of CO_2 from the alveoli to the blood capillaries

Ⓒ Both Ⓐ and Ⓑ

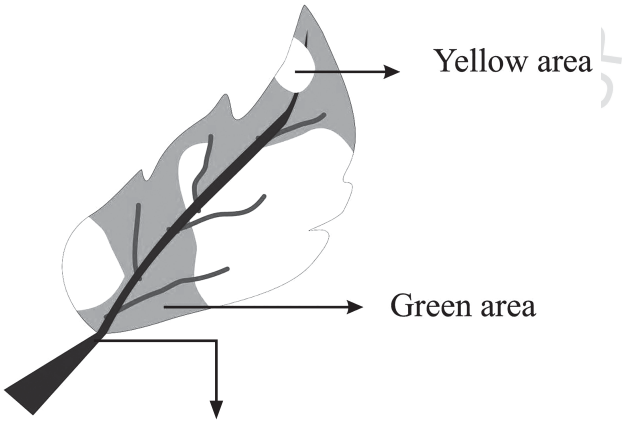
Ⓓ Neither Ⓐ nor Ⓑ

97. How many molecules of pyruvic acid and ATP are produced in every turn of aerobic respiration?

Ⓐ 2 and 20, respectively Ⓑ 2 and 38, respectively Ⓒ 3 and 25, respectively Ⓓ 3 and 48, respectively

Study the given diagram and answer the following questions (98-100):

A leaf, as the one shown in the picture, is used to perform an experiment based on photosynthesis.



98. Which experiment can be specifically demonstrated by the given leaf?

Ⓐ Sunlight is essential for photosynthesis

Ⓑ Chlorophyll is essential for photosynthesis

Ⓒ CO_2 is essential for photosynthesis

Ⓓ Oxygen is evolved during photosynthesis

99. Which step has to be undertaken before performing the above experiment?

Ⓐ Destarching the plant

Ⓑ Keeping the plant in water

Ⓒ Adding HCl to the leaf

Ⓓ Adding iodine to the leaf

100. Which of the following leaf/leaves can be used in the above experiment?

Ⓐ *Coleus* Ⓑ Banyan Ⓒ Neem Ⓓ All of the above