



Monthly Progressive Test

Class: VIII (S)

Subject: PCMB



Test Booklet No.: MPT05

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 .
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 scibble 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. A boy picks a mango from a tree. Just before picking how many forces are acting on the mango?
 (A) 1 (B) 2 (C) 3 (D) 4
2. A body of mass 1 kg is resting on a table. What is the value of the normal force?
 (A) 1 N (B) 1 dyn (C) 1 kgf (D) None of these
3. Friction is
 (A) Advantageous (B) Disadvantageous (C) Both of these (D) None of these
4. Air pressure changes with altitude because of changes in
 (A) density of the atmosphere (B) depth of the atmosphere
 (C) both of (A) and (B) (D) temperature of the atmosphere
5. A man pulls a mass of 10 kg with a horizontal force of 50 N and the mass accelerates with 2 m/s^2 . What will be the value of the friction coefficient? ($g = 10 \text{ m/s}^2$)
 (A) 0.2 (B) 0.3 (C) 0.4 (D) 0.5
6. At a depth h , in a liquid or gas, pressure is equal to
 (A) $\rho g / h$ where ρ is the density of the liquid/gas
 (B) hg / ρ where ρ is the density of the liquid/gas
 (C) $\rho h / g$ where ρ is the density of the liquid/gas
 (D) ρgh where ρ is the density of the liquid/gas
7. A body of mass 1 kg is resting on a table. Another body of mass 2 kg is placed on top of the previous body. What is the normal force the body of mass 1 kg feels [$g = 9.8 \text{ ms}^{-2}$].
 (A) 9.8 N (B) 29.4 N (C) 19.6 N (D) 39.2 N
8. 1 atm is equivalent to x (m) water column height pressure, then $x =$
 (A) 5 (B) 8 (C) 6 (D) 10
9. Pressure exerted by water in glass of full of water, placed in the floor of an elevator which is accelerating upwards will be
 (A) $> h\rho g$ (B) $< h\rho g$
 (C) $= h\rho g$ (D) Insufficient information
10. Which force is responsible for upward movement of parachute
 (A) gravitational force (B) buoyant force
 (C) magnetic force (D) electrostatic force

11. The similarities between electrostatic force and magnetic force
 (A) Both are non-contact forces (B) Both are attractive
 (C) Both can be repulsive (D) All of these
12. A spring balance is used to measure
 (A) Mass of object (B) Weight of object (C) Pressure (D) Speed of object
13. If friction suddenly vanishes what happens?
 (A) We are unable to walk (B) We are unable to write
 (C) We are unable to hold (D) All of these are correct
14. Book A, book B, and book C of same dimensions and density of papers being same are resting on a table. Book A has 100 pages, book B has 250 pages, while book C has 500 pages. Which book will face more friction?
 (A) Book A (B) Book B
 (C) Book C (D) They all face the same friction
15. If a 10 N and 5 N force act on a body of mass 5 kg, along the same line and direction, then acceleration of the body is
 (A) 1 m/s^2 (B) 2 m/s^2 (C) 3 m/s^2 (D) 5 m/s^2

Assertion Reason based Questions (16 - 17) :

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.
16. **Assertion:** The atmospheric pressure is so great but we aren't crushed
Reason: The atmospheric pressure acting on our body from outside is balanced by the blood pressure acting from inside
 (A) A (B) B (C) C (D) D
17. **Assertion:** To pull the rubber sucker off the wall, the applied force should be large enough
Reason: When the sucker hook is pressed, the air inside it is forced out, leaving a low pressure area inside the hollow of the sucker hook. The higher atmospheric pressure outside presses down on the hook and makes it stick tightly on the wall.
 (A) A (B) B (C) C (D) D

Case based Questions (18 – 20):

Drinking through a straw.

The air pressure helps us enjoy our drink. When we suck, we are removing the air in the straw which allows the atmospheric air pressure acting on the surface of the liquid to push the liquid up the straw. Without air pressure acting on the surface, no amount of sucking will raise the liquid. We can try this by sucking the liquid from the air tight container. The liquid will not rise up, no matter how hard we suck.

- 18.** While sucking the straw, mention the substance we remove
 (A) air (B) water (C) oil (D) kerosene
- 19.** When sucking fails? It must be
 (A) in presence of air (B) in absence of air (C) both (A) and (B) (D) none of these
- 20.** Wider base of building foundation makes building
 (A) unsafe (B) safe
 (C) unbalanced (D) prone to earth quake
- 21.** Find the wrong statement with respect to the phenomenon of friction
 (A) furnitures at our home would not be at the same place without friction
 (B) machine efficiency would always be maximum without friction
 (C) without friction walking would have been easier
 (D) energy lost due to friction is always lost and cannot be retrievable
- 22.** If the displacement of the particles of a wave is plotted against time, the distance between neighboring crests is the
 (A) frequency (B) time period (C) velocity (D) amplitude
- 23.** If frequency of a sound wave is 1 Hz and wavelength is 1 m, then its speed is
 (A) 0.1 m/s (B) 1 m/s (C) 10 m/s (D) 100 m/s
- 24.** A mobile phone tower transmits a wave signal of frequency 800 MHz. What is the wavelength of the transmitted waves?
 (A) 0.18 m (B) 0.32 m (C) 0.38 m (D) 0.42 m
- 25.** V_{air} = speed of sound in air V_{water} = speed of sound in water
 V_{steel} = speed of sound in steel Choose the correct option from below
 (A) $V_{\text{air}} > V_{\text{water}} > V_{\text{steel}}$ (B) $V_{\text{air}} = V_{\text{water}} > V_{\text{steel}}$
 (C) $V_{\text{air}} = V_{\text{water}} = V_{\text{steel}}$ (D) $V_{\text{air}} < V_{\text{water}} < V_{\text{steel}}$

Chemistry

26. An electric current can generate
- (A) heating effect only (B) chemical effect only
(C) magnetic effect (D) chemical, heating, magnetic effect
27. A glass made container contains some amount of liquid solution and through a circuit, a bulb is fitted. Using which of the following solution, the bulb will never glow ?
- (A) Sodium chloride solution (B) Copper sulphate solution
(C) Silver nitrate solution (D) Sugar solution in dilute water
28. Among the given substances, which are bad conductors of electricity ?
- (I) Piece of coal (II) Iron nail (III) Eraser
- (A) I, II, III (B) I, II (C) I, III (D) II, III
29. The lightning of electric bulb in a circuit shows :
- (A) Chemical effect of electric current (B) Heating effect of electric current
(C) Magnetic effect of electric current (D) None of the above
30. During thunderstorms, lightning occurs because
- (A) at that time, air acts as a poor conductor
(B) at that time, air acts as a good conductor
(C) at that time, temperature changes
(D) at that time, pressure changes
31. One substance is considered as poor conductor because
- (A) it is round in shape
(B) it is black in colour
(C) it can change its temperature on heating
(D) no option is correct
32. A tester is used to
- (A) calculate the volume of a body
(B) calculate the temperature of a body
(C) check the presence of electric current in a body
(D) calculate the number of molecules present in a body

33. Before performing the experiments with copper wire, it is rubbed with sand paper. Because
- Ⓐ Sand paper changes the colour of the copper wire and it can conduct electricity very well
 - Ⓑ Sand paper removes the dirt from the outer part of the wire and it can conduct electricity very well
 - Ⓒ Sand paper changes the length of the copper wire and it can conduct electricity very well
 - Ⓓ A layer of sand gets deposited on the outer surface of the copper wire and it can conduct electricity very well
34. Which is true when LED is connected with battery ?
- Ⓐ The longer lead is connected with negative terminal and shorter lead is connected with positive terminal
 - Ⓑ The shorter lead is connected with negative terminal and longer lead is connected with positive terminal
 - Ⓒ Both leads are connected with negative terminal
 - Ⓓ Both leads are connected with positive terminal

Question number 35 to 37 are ASSERTION-REASON TYPE QUESTIONS. Read two statements carefully and select the correct option given below.

OPTION A : Assertion and reason both are correct and reason is the correct explanation of assertion

OPTION B : Assertion and reason both are correct and reason is not the correct explanation of assertion

OPTION C : Assertion is correct but reason is wrong

OPTION D : Assertion is wrong but reason is correct

35. **Assertion :** Aqueous solution of calcium chloride is a good conductor of electricity
Reason : Both calcium cation and chloride anion are responsible for electricity conduction
36. **Assertion :** When an experiment regarding electrical conductivity is done with vinegar solution then iron made container is not used
Reason : Vinegar solution reacts with iron and the experiment cannot be done properly
37. **Assertion :** At the time of electrolysis of water, dilute acids are used but bases cannot be used
Reason : Electrical conductivity of acidified water is high

Question number 38 to 40 are **CASE BASED QUESTIONS**. Read the passage carefully and select the correct option given below:

Good conductors are those which can spontaneously conduct electricity. Conductors can be solid, liquid and gaseous. On the other hand non-conducting materials cannot conduct electricity and they are termed as insulators. For electricity conduction the first criteria is there must be a circuit. Electrical energy can be converted into mechanical energy, heat energy, chemical energy, etc.

38. In case of ringing of bells in your school the correct option is
- (A) electrical energy converted into chemical energy
 (B) mechanical energy converted into electrical energy
 (C) electrical energy converted into mechanical energy
 (D) chemical energy converted into mechanical energy
39. Conductors are
- (A) solids, gaseous
 (B) gaseous, liquid
 (C) solids and liquids
 (D) solids, liquids and gaseous
40. An example of an insulator is
- (A) dilute sulphuric solution
 (B) rubber
 (C) copper
 (D) steel
41. Shyam was cooking potato curry on a chulah. To his surprise, he observed that the copper vessel was getting blackened from outside. It may be due to
- (A) proper combustion of fuel
 (B) improper cooking of potato curry
 (C) improper combustion of fuel
 (D) burning of copper vessel
42. Which one has the highest calorific value ?
- (A) Kerosene (B) Bio-gas (C) LPG (D) Petrol
43. A student burns three substances P, Q, R and records the observation in a table

Substance	Observation
P	Burns quickly producing heat and light
Q	Burns at room temperature on its own
R	Burns with evolution of heat, light and sound

Which option correctly categories the given substances ?

- (A) All the substances are undergoing rapid combustion

- Ⓑ Substance P undergoing rapid combustion, substance Q undergoing spontaneous combustion, whereas substance R is undergoing explosion
- Ⓒ Substance P and Q are undergoing spontaneous combustion, whereas substance R is undergoing rapid combustion
- Ⓓ Substance R is undergoing rapid combustion, substance Q undergoing spontaneous combustion, whereas substance R is undergoing explosion
44. Which are produced at the outermost zone of a candle flame ?
- Ⓐ Carbon and water vapour Ⓑ Carbon dioxide and carbon
- Ⓒ Carbon dioxide and water vapour Ⓓ Carbon monoxide and water vapour
45. Fuel must be heated to it's _____ before it starts burning
- Ⓐ conversion temperature Ⓑ ignition temperature
- Ⓒ inversion temperature Ⓓ combustion temperature
46. A magnetic compass is placed very close to a wire which is conducting electric current. Suddenly the power supply to the wire is just stopped. Then the correct observation will be
- Ⓐ the compass will become too hot
- Ⓑ the glass placed in the compass will crack
- Ⓒ the colour of the needle will change
- Ⓓ deflection of needle will stop immediately
47. Which of the following is impact of heating effect of current ?
- Ⓐ Water turns into ice Ⓑ Copper wire conducts electricity
- Ⓒ A bulb glows Ⓓ Table salt becomes water soluble
48. Circuit is used
- Ⓐ to check whether heat is generated or not
- Ⓑ to check whether current is passing or not
- Ⓒ to check whether sound is generated or not
- Ⓓ to check whether colour is produced or not
49. Filament is present in
- Ⓐ only LED Ⓑ only bulb
- Ⓒ both LED and bulb Ⓓ none of LED and bulb

50. Electrical appliances are not touched with wet hand because
- Ⓐ Electrical appliances will face colour change
 - Ⓑ Electrical appliances will face rusting
 - Ⓒ Electrical appliances will start to conduct electricity
 - Ⓓ Electrical appliances will start to burn

Mathematics

51. Find the cost price of an article which is sold at ₹1470 at a profit $16\frac{2}{3}\%$.
- Ⓐ ₹1520 Ⓑ ₹1760 Ⓒ ₹1260 Ⓓ ₹1560
52. A man bought an article for ₹1200 and spent ₹200 on its repair. He sold it for ₹1680. His profit percent is
- Ⓐ 20% Ⓑ 25% Ⓒ 30% Ⓓ 40%
53. At what rate per cent per annum will a sum of ₹15,625 amount to ₹21,952 in three years, if the interest is compounded annually?
- Ⓐ 12% Ⓑ 8% Ⓒ 9% Ⓓ 10%
54. A certain sum will amount to ₹12,100 in 2 years at 10% per annum of compound interest, interest being compounded annually. The sum is-
- Ⓐ ₹12000 Ⓑ ₹6000 Ⓒ ₹8000 Ⓓ ₹10000
55. A polygon has 9 diagonals. How many sides does it have?
- Ⓐ 9 Ⓑ 3 Ⓒ 6 Ⓓ 8
56. If the exterior angles of a polygon are in the ratio of 1 : 2 : 3 : 4 : 5, then find the largest interior angle.
- Ⓐ 148° Ⓑ 156° Ⓒ 254° Ⓓ 150°
57. ABCD is a quadrilateral. Two diagonals AC and BD intersect each other at O. Then how many total number of triangles we have
- Ⓐ 2 Ⓑ 4 Ⓒ 6 Ⓓ 8

Assertion Reason based Questions (58–59):

Directions: In this question, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choice.

- (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): A dealer lists his articles at 20% above the cost price and allow discount of 10%. Then his gain % is 8%.

Reason (R): $S.P. = M.P. - \text{discount}$ and $\text{discount} = S.P. \times \text{discount}\%$

- Ⓐ a Ⓑ b Ⓒ c Ⓓ d

59. Assertion (A): If $CP : SP = 10 : 11$, then $\text{gain}\% = 10\%$.

Reason (R): $\text{gain}\% = \frac{\text{gain}}{CP} \times 100\%$

- Ⓐ a Ⓑ b Ⓒ c Ⓓ d

Case Study Based Questions (60 – 62):

In the urine culture test of Mr. X, it was observed that the bacterial count was increasing at the rate of 2% per hour. Initially, the count was 50,000 bacteria.



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

60. Find the bacteria at the end of 2 hours.

- Ⓐ 53030 Ⓑ 54040 Ⓒ 55050 Ⓓ 52020

61. If the bacteria continue to grow at this rate, how long will it take for the bacterial population to double? [given $(1.02)^{35} = 2$]

- Ⓐ 30 hours Ⓑ 40 hours Ⓒ 35 hours Ⓓ 45 hours

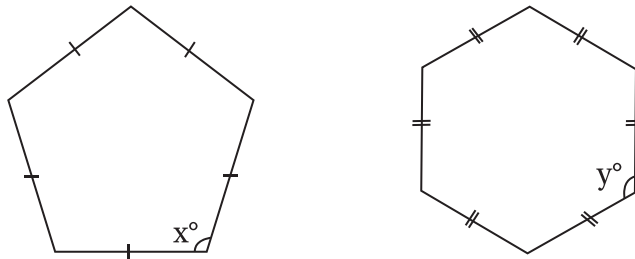
62. If the initial count of bacteria was 500 instead of 50,000 what will be the bacterial population after 24 hours. [Given $(1.02)^{24} = 1.6$]

- Ⓐ 800 Ⓑ 8000 Ⓒ 900 Ⓓ 9000

63. Ratio of sum of all the interior angles of n -sided polygon to the sum of all the interior angles of pentagon is 4 : 1. The value of n is

- (A) 16 (B) 10 (C) 12 (D) 14

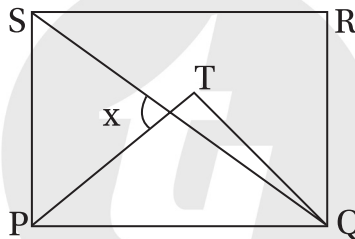
64.



what is the ratio of $x : y$?

- (A) 9 : 10 (B) 7 : 9 (C) 4 : 3 (D) 3 : 4

65. In the given figure, PQT is an equilateral triangle and PQRS is a square. Find the value of x .



- (A) 115° (B) 120° (C) 100° (D) 105°

66. A number increased by $22\frac{1}{2}\%$ gives 98 as result. The number is

- (A) 45 (B) 18 (C) 80 (D) 81

67. If $a^2 + \sqrt{2}a + 1 = 0$ then find the value of $\frac{a^4 + a^2 + 1}{a^2}$

- (A) $\sqrt{2}$ (B) $-\sqrt{2}$ (C) 5 (D) 1

68. The value of $(1)^{-1} + \left(\frac{1}{2}\right)^{-1} + \left(\frac{1}{3}\right)^{-1}$ is

- (A) -6 (B) 1 (C) 6 (D) 0

69. Evaluate $\sqrt[3]{\frac{343 \times 125}{0.064}}$

- (A) 87.5 (B) 807.5 (C) 8.75 (D) 0.875

70. The rational number that does not have a reciprocal is

- (A) 0 (B) 1 (C) -1 (D) 12

Assertion Reason based Questions (71–72):

Directions: In this question, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choice.

- (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.

71. Assertion (A) : If the number of diagonals of a polygon is 9, then the number of sides is 6.

Reason (R) : Number of Diagonals of a polygon having n -sides = $\frac{n(n+1)}{3}$.

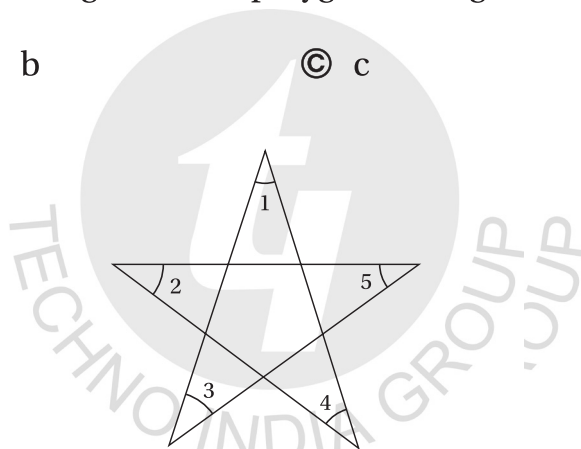
(A) a

(B) b

(C) c

(D) d

72. Assertion (A) :



$$\angle 1 + \angle 2 + \angle 3 + \angle 4 + \angle 5 = 180^\circ$$

Reason (R) : Sum of three angles of a triangle is 180° .

(A) a

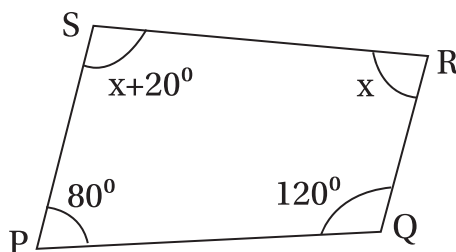
(B) b

(C) c

(D) d

Case Study Based Questions (73–75):

Shyam Babu has a quadrilateral garden with four angles x , $x + 20^\circ$, 80° and 120° and he planted a mango tree in the corner where the angle is the smallest. For sitting, he chose the corner with the largest angle. On the basis of the above informations answer the following questions.



73. Find x .
- (A) 70° (B) 80° (C) 90° (D) 120°
74. In which vertex did he plant the mango tree?
- (A) P (B) Q (C) R (D) S
75. In which vertex did he make sitting arrangement ?
- (A) P (B) Q (C) R (D) S

Biology

76. What is one benefit of reforestation for local communities?
- (A) Increased risk of floods and landslides
(B) Enhanced biodiversity
(C) Improved water quality and reduced soil erosion
(D) Accelerated desertification
77. Who uses the information in the Red Data Book?
- (A) Conservationists and policymakers (B) Hunters and poachers
(C) Industrialists and urban developers (D) Individuals interested in fashion trends
78. How is a food web different from a food chain?
- (A) A food web is a single linear sequence while a food chain is complex and interconnected
(B) A food web shows multiple interconnected food chains in an ecosystem
(C) A food web represents energy flow in only aquatic ecosystems
(D) A food chain represents energy flow in terrestrial ecosystems
79. Which is NOT a consequence of deforestation?
- (A) Increased risk of floods and landslides (B) Loss of biodiversity
(C) Improvement in ecosystem balance (D) Disruption of ecosystems
80. What are the primary reasons for animal migration?
- (A) Lack of adaptation to their environment
(B) Avoiding seasonal changes
(C) Seeking better living conditions, breeding grounds, or food sources
(D) Resistance to migration instinct

81. Which category in the Red Data Book includes species at the highest risk of extinction?
 (A) Endangered species (B) Vulnerable species
 (C) Least Concern species (D) Extinct species
82. What distinguishes an endemic species from others?
 (A) Its ability to migrate long distances (B) Its presence in multiple ecosystems
 (C) Its limited geographical range (D) Its resistance to environmental changes
83. What is the primary focus of a wildlife sanctuary?
 (A) Promoting deforestation (B) Conserving animal habitats
 (C) Encouraging urban development (D) Ignoring conservation efforts

Assertion-Reason type Questions (84–85):

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.

84. **Assertion:** Wiping out of a species can affect the livelihoods of people.

Reason: In the long run, depletion of biodiversity can threaten our very existence.

- (A) A (B) B (C) C (D) D

85. **Assertion:** India is one of the 19 mega biodiversity countries in the world.

Reason: India is one of the countries with the greatest biodiversity.

- (A) A (B) B (C) C (D) D

Case Based Questions (86–90):

In 1971, the UNESCO began the 'Man and the Biosphere Programme' to establish at least one biosphere reserve in each of the earth's 193 biogeographical zones. The idea was to conserve biodiversity. India has 3 biosphere reserves under this programme—the Nilgiris, the Gulf of Mannar and the Sunderbans.

86. What are the threats to biodiversity?

- (A) Deforestation (B) Hunting (C) Pollution (D) All

87. A biosphere reserve consists of _____ zones
(A) 1 (B) 2 (C) 3 (D) 4
88. In which zone of the biosphere reserve, human activities are minimal or completely restricted?
(A) Core zone (B) Buffer zone (C) Transition zone (D) All
89. What is/are the basic objective/objectives of a biosphere reserve?
(A) To conserve biodiversity (B) To promote sustainable development
(C) To facilitate research and education (D) All of the above
90. Where is the Pachmarhi Biosphere Reserve located?
(A) In West Bengal (B) In Madhya Pradesh
(C) In Haryana (D) In Uttar Pradesh
91. Which of the following is an advantage of using modern irrigation methods in agriculture?
(A) Increased soil conservation (B) Higher surface run off
(C) Improved water conservation (D) Reduced crop yield
92. For bone health, we require
(A) Dairy products (B) Meat
(C) Molluscs (D) All of the above
93. The problem with animal food products is—
(A) They have more proteins in them (B) They have more carbohydrates in them
(C) They have more vitamins in them (D) They have more fats in them
94. What role do decomposers (microorganisms) play in the ecosystem?
(A) They release oxygen into the atmosphere
(B) They help in the process of photosynthesis
(C) They break down dead organisms and organic matter
(D) They fix nitrogen from the atmosphere
95. The disease diseases that can be prevented by vaccination are—
(A) Measles (B) Mumps (C) Rubella (D) All

Space For Rough Works