



Monthly Progressive Test

Class: VIII (S)

Subject: PCMB



Test Booklet No.: MPT07

Test Date:

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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 .
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. If the displacement of the particles of a wave is plotted against time, the distance between neighbouring crests is the
 (A) Frequency (B) time period (C) velocity (D) wavelength
2. The distance between two neighbouring rarefactions is the
 (A) amplitude (B) time period (C) frequency (D) wavelength
3. Loudness is measured in
 (A) m (B) s (C) dB (D) Hz
4. The lens in human eye is a
 (A) concave lens (B) spherical lens (C) convex lens (D) none of these
5. Which part of the eye controls the amount of light entering the eye?
 (A) iris (B) ciliary muscles (C) pupil (D) cornea
6. An eye-defect which affects the far-point is
 (A) myopia (B) hypermetropia (C) cataract (D) conjunctivitis
7. The frequency of a light ray
 (A) is fixed by the light source
 (B) changes while traveling through a medium
 (C) is zero
 (D) none of these

Assertion-Reason type Questions :

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.

8. **Assertion:** We can hear the ringing of doorbell or mobile phone.

Reason: Sound can travel through gases (i.e., Air)

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

9. **Assertion:** The sound produced by a simple pendulum cannot be heard.

Reason: The frequency of a simple pendulum is very low.

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

■ Case Based Questions

Raman saw a cracker burst at night at a distance from his house. He heard the sound of cracker a little later after seeing the cracker burst.

10. The reason for delay in hearing of sound is that

- (A) the speed of sound is higher than the speed of light
 (B) the speed of sound is lower than the speed of light
 (C) the speed of sound is equal to the speed of light
 (D) none of these

11. In wet air, speed of sound is

- (A) less than through dry air (B) greater than through dry air
 (C) same as through dry air (D) none of these

12. The relation between frequency f , wavelength λ and velocity of propagation v of a wave is:

- (A) $v\lambda = f$ (B) $\frac{\lambda f}{v} = 1$ (C) $\frac{vf}{\lambda} = 1$ (D) $\frac{f}{v} + \frac{\lambda}{v} = 1$

13. The wavelength of sound in air is 10 cm. Its frequency is

- (A) 330 cycle per s (B) 3.3 kilocycle per s
 (C) 30 mega cycle per s (D) 3 Giga cycle per s

14. Which of the following properties of a wave does not change with change in medium?

- (A) Frequency (B) Wavelength (C) Velocity (D) Amplitude

15. Transverse elastic waves can propagate:

- (A) both in a gas and a metal (B) in a gas and but not in a metal
 (C) in a metal but not in a gas (D) neither in a gas nor in a metal

Assertion-Reason type Questions :

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 astronauts communicate with each other over radio set.

Reason: Radio waves cannot travel through vacuum.

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

17. **Assertion:** Suppose a stick is struck against a frying pan in vacuum, we cannot hear the sound.

Reason: The frying pan will not vibrate in vacuum.

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

18. The Dams are prepared making the wall of the dam

- (A) of same cross-section through out (B) thicker with depth
 (C) thinner with depth (D) none of the above

19. The phenomenon in Q. 18 is called

- (A) Hydrostatic Jinx (B) Hydrostatic Paradox
 (C) Hydrostatic Equality (D) None of the above

20. Sound cannot travel through

- (A) solids (B) liquids (C) gases (D) vacuum

■ Case Study Based Questions (21-23)

21. A ship has a length of 100 m. It is moving on a flat sea bed at a depth 3 km. The ship emits an ultra sound of frequency 30 kHz from rear end and picks up its reflection from sea bed at its front. If speed of sound in sea water is 1500 ms^{-1} , time interval in between emission and collection is approximately

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

22. The wavelength of this sound wave is

- (A) 5 m (B) 50 m (C) 5 cm (D) 4 m

23. The number of total waves in this travel of ultra signal, from start to end, is

- (A) 500000 (B) 120000 (C) 250000 (D) 300000

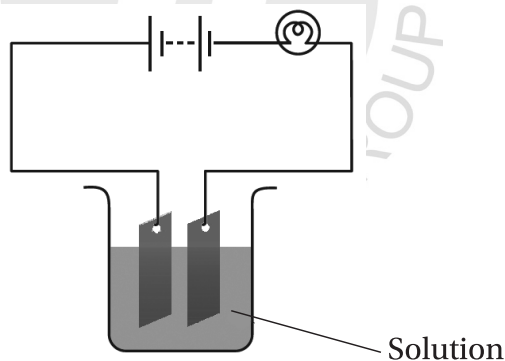
24. The angle between two plane mirrors is 72° . The number of images for an object placed in between the mirrors is

- (A) 5 (B) 4 (C) 6 (D) none

25. The speed of sound through diatomic ($\gamma = 1.4$) oxygen is 350 ms^{-1} . The value of Universal Gas Constant is $8.314 \text{ JK}^{-1}\text{mol}^{-1}$. The temperature of oxygen (molecular weight = 32) is
- (A) 337°C (B) 64°C (C) 400°C (D) 80°C

Chemistry

26. Which is a metalloid ?
- (A) iron (B) mercury (C) arsenic (D) krypton
27. In case of rusting, the metal gets coated with its
- (A) oxide (B) bromide (C) hydride (D) nitride
28. Nichrome is an alloy of
- (A) copper & zinc (B) copper & tin
(C) nickel & chromium (D) iron & chromium
29. Liquid non-metal is
- (A) nitrogen (B) mercury (C) bromine (D) iodine
30. Which of the following solutions will not make the bulb in figure glow?



- (A) sodium chloride (B) copper sulphate
(C) silver nitrate (D) sugar solution in diluted water
31. An electric current can produce:
- (A) heating effect only (B) chemical effect only
(C) magnetic effect (D) chemical, heating and magnetic effect
32. Alloy is a solution of
- (A) solid - liquid (B) solid - solid (C) solid - gas (D) liquid - gas
33. Which of the following glows at low electric supply?
- (A) a bulb (B) room heater (C) LED (D) a tube light

34. Which is true about tin cans, used for string food?

- Ⓐ It is made by electroplating of tin by iron
- Ⓑ It is made by electroplating of iron by tin
- Ⓒ It is made by electroplating of nickel by tin
- Ⓓ It is made by electroplating of tin by nickel

Assertion Reason Type Question (35–37):

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:** A bulb glows due to heating effect of current

Reason: Bulb is used in a circuit to detect the current flow

- Ⓐ A
- Ⓑ B
- Ⓒ C
- Ⓓ D

36. **Assertion:** In case of large iron structures, zinc coating is done instead of chromium coating

Reason: Zinc is costlier than chromium

- Ⓐ A
- Ⓑ B
- Ⓒ C
- Ⓓ D

37. **Assertion:** Aqueous solution of calcium chloride is a good conductor of electricity

Reason: Both calcium cation and chloride anion are responsible for electricity conduction

- Ⓐ A
- Ⓑ B
- Ⓒ C
- Ⓓ D

Case Study Based Question (38–40):

LED (light emitting diode) is used to check whether a system is conducting electricity or not. LED has two ends one is long (connected with the positive terminal of the battery) and another end is small (connected with the negative terminal of the battery). LED consumes less amount of electricity than bulbs and there is no chance of disruption of the filament. LED glows better than normal bulbs and due to its high range of stability, it is used to prepare traffic and railway signals, household lights, etc.

38. The full form of LED is

- Ⓐ Low emitting diode
- Ⓑ Light emitting diode
- Ⓒ Long emitting diode
- Ⓓ Light emission and defraction

39. To construct the railway signals, which is used ?
- (A) Only LED
(B) Only bulb
(C) Both LED and bulb
(D) None of LED and bulb
40. Filament is present in
- (A) Only LED
(B) Only bulb
(C) Both LED and bulb
(D) None of LED and bulb

Assertion Reason Type Question (41):

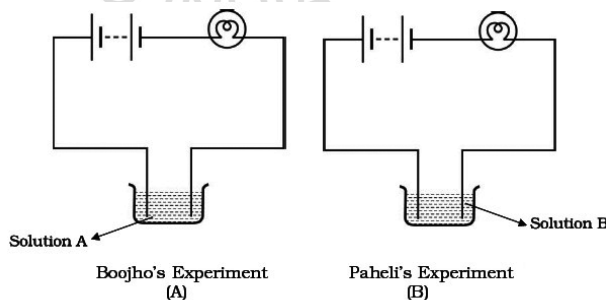
Read the two statements carefully and select the correct option given below.

- 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
41. **Assertion:** When electrodes are placed inside acidified water and electricity is passed through it then two colourless gases are obtained

Reason : Acidified water is electrolysed when current is passed through it

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

42. Boojho and Paheli performed experiments taking similar bulbs and cells but two different solutions A and B as shown in figure.



They found that the bulb in the setup A glows more brightly as compared to that of the setup B. You would conclude that

- (A) higher current is flowing through the circuit in setup A
 (B) higher current is flowing through the circuit in setup B
 (C) equal current is flowing through both the circuits
 (D) the current flowing through the circuit in the two setups cannot be compared in this manner

Case Based Questions (43–44):

The process by which a metal is coated over another metal by using electric current is known as electroplating. The substance which will be electroplated is taken as the negative terminal and the layer that will be given is taken as the positive terminal. The solution of the salt containing the coating metal ion is used as the electrolyte. In this process, coating of a costlier metal is given over the cheaper metal.

43. During electroplating of copper, aqueous solution of which salt is used ?
- (A) silver nitrate (B) zinc sulphate
 (C) copper sulphate (D) sodium chloride
44. During electroplating of copper, the role of the aqueous solution of the salt is
- (A) insulator (B) electron supplier
 (C) heat generator (D) electrolyte
45. Which is true when LED is connected with battery ?
- (A) The longer lead is connected with negative terminal and shorter lead is connected with positive terminal
 (B) The shorter lead is connected with negative terminal and longer lead is connected with positive terminal
 (C) Both leads are connected with negative terminal
 (D) Both leads are connected with positive terminal
46. Which alloy contains chromium?
- (A) Brass (B) Bell metal (C) Nichrome (D) All of these

Assertion Reason Type Question (47–48):

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

47. **Assertion:** Metals react with oxygen form metallic oxides. Metallic oxides are basic and amphoteric oxides

Reason: Amphoteric oxide reacts with acid only.

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

48. Assertion: Some of the gaseous non-metals do not react easily and they are highly stable in atomic form. They are known as noble gas or inert gas.

Reason: Argon gas is used to fill the electric bulb and helium is used in the gas-bulb.

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

49. Which of the following gas(es) is/are inert gas(es)?

- (A) Neon (B) Argon (C) Krypton (D) All of these

50. The process by which a chemical compound conducts electricity and decompose to give new compounds in its aqueous solution is called:

- (A) Electroplating (B) Electrometal energy
(C) Electrolysis (D) Electrorefining

Mathematics

51. A train 150 metre long is running at 90 km/h. How long (in seconds) will it take to clear a platform that is 300 m long ?

- (A) 6 (B) 18 (C) 12 (D) 50

52. The weight of 12 sheets of a thick paper is 40 gram. How many sheets would weigh 1 kg?

- (A) 300 (B) 360 (C) 480 (D) None of these

53. A can do a piece of work in 10 days and B can do it in 20 days. They finished the work with the help of C in 5 days. How long C will take to finish the work alone?

- (A) 10 days (B) 15 days (C) 20 days (D) 5 days

54. A pump can fill a tank in 2 hours. Due to a leak in the tank it takes $2\frac{1}{3}$ hours to fill it. The leak can empty the full tank in

- (A) 12 hours (B) 10 hours (C) 14 hours (D) 8 hours

55. The parallel sides of trapezium are 16 ft and 25 ft and an oblique side is 15 ft. The other side is perpendicular to the parallel sides. What is its area?

- (A) 242 sq ft (B) 240 sq ft (C) 246 sq ft (D) 244 sq ft

56. A cube has _____ faces.

- (A) 4 (B) 5 (C) 6 (D) 8

57. The ratio of radii of two cylinders is 1 : 2 and heights are in the ratio 2 : 3. The ratio of their volumes is

- (A) 1 : 6 (B) 1 : 9 (C) 1 : 3 (D) 2 : 9

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) : A polyhedron can have 10 faces, 20 edges and 15 vertices.

Reason (R) : Euler's formula for convex polyhedron is $F + V - E = 2$

- (A) a (B) b (C) c (D) d

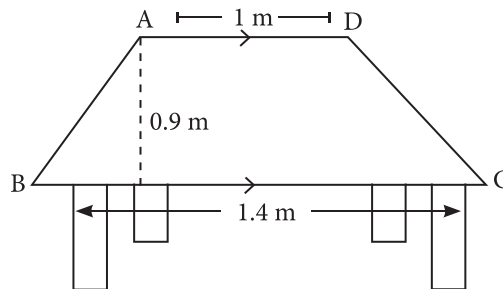
59. Assertion (A) : The dimensions of a room are $3 \text{ m} \times 4 \text{ m} \times 5 \text{ m}$. The room is divided into two parts by placing a plywood sheet diagonally across the room. Now the area of the plywood sheet (ignoring its thickness) is 35.36 m^2

Reason (R) : In a right triangle, the square of the length of hypotenuse is equal to the sum of the squares of the length of other two sides.

- (A) a (B) b (C) c (D) d

Case Study Based Questions (60–62):

Mr. Rabi has bought a trapezoidal table for his laboratory. The table has two parallel sides measuring 1 m and 1.4 m, and distance between these sides is 0.9 m. Based on this information answer the following questions.



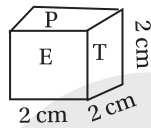
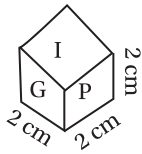
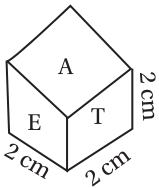
60. If he wants to paint the top surface, then how much area he has to paint ?

- (A) 1.08 m^2 (B) 1 m^2 (C) 2.08 m^2 (D) 2 m^2

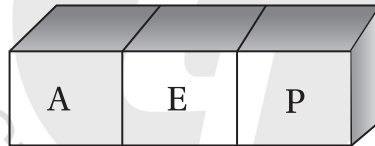
61. If the cost of the paint is ₹20/ m^2 , then find the cost of painting the top surface of the table.

- (A) ₹ 20.80 (B) ₹ 21.60 (C) ₹ 25.50 (D) ₹ 26.50

62. If the top is an isosceles trapezium, then what will be its length of each non parallel side ?
(Give the answer to the nearest integer.)
 (A) 1 m (B) 2 m (C) 3 m (D) 4 m
63. Each side of a rhombus is 10 cm and the length of its diagonal is 16 cm. The area of the rhombus is
 (A) 216 cm^2 (B) 96 cm^2 (C) 144 cm^2 (D) 240 cm^2
64. How many faces does an icosahedron has?
 (A) 20 (B) 12 (C) 8 (D) 6
65. Three cubes are labelled with the 6 letters A, E, P, T, I and G on their 6 faces :

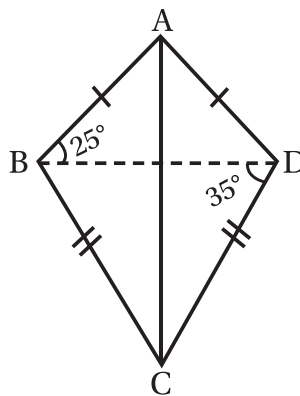


These cubes are now placed in a row so that the front looks like this :



What is the total surface area of the cuboid solid "AEP"

- (A) 216 cm^2 (B) 56 cm^2
 (C) 24 cm^2 (D) 28 cm^2
66. In the figure ABCD is a kite. $AB = AD$ and $BC = DC$, $\angle ABD = 25^\circ$; $\angle CDB = 35^\circ$. Find x if $\angle A - \angle C = 2x$.



- (A) 40° (B) 30° (C) 20° (D) 10°

67. A polygon has 9 diagonals. How many sides does it have?
 (A) 9 (B) 3 (C) 6 (D) 8
68. $242x^2 - 162b^2 = ?$
 (A) $2(11x + 9b)(11x + 9b)$ (B) $2(11x - 9b)(11x - 9b)$
 (C) $2(11x + 9b)(11x - 9b)$ (D) $(9x - 11b)(9x + 11b)$
69. Evaluate $\sqrt[3]{\frac{343 \times 125}{0.064}}$
 (A) 87.5 (B) 807.5 (C) 8.75 (D) 0.875
70. 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
71. A pentagonal prism has edges.
 (A) 5 (B) 10 (C) 15 (D) 20
72. A square prism is also called
 (A) either cube or cuboid (B) cuboid only
 (C) tetrahedron (D) None of these
73. The area of a rhombus is 3^{12} cm² and one of its diagonal is 3^7 cm. The length of another diagonal is
 (A) 485 cm (B) 484 cm
 (C) 487 cm (D) 486 cm
74. 180 men had food provision for 300 days. After 10 days, 60 men died due to an epidemic COVID-19. How long will the remaining food last?
 (A) 436 days (B) 435 days (C) 335 days (D) 440 days
75. Two taps A and B can fill a cistern in 6 minutes and 12 minutes respectively. The tap C can empty it in 8 minutes. If three taps are opened together, then how long will they take to fill the empty cistern?
 (A) 6 minutes (B) 15 minutes (C) 14 minutes (D) 8 minutes

Biology

76. Reproduction by budding takes place in
 (A) Hydra (B) Amoeba (C) Paramecium (D) Bacteria

77. Which of the following is not a part of human sperm?
 (A) Sperm duct (B) Middle piece
 (C) Head (D) Tail
78. After fertilisation, the resulting cell which gives rise to a new individual, is the
 (A) Zygote (B) Foetus (C) Ovum (D) Embryo
79. The male gamete is called
 (A) Sperm (B) Embryo (C) Ovum (D) Zygote
80. A tadpole develops into an adult frog by the process of
 (A) Budding (B) Fertilisation
 (C) Metamorphosis (D) Binary fission
81. The offsprings produced by asexual reproduction are
 (A) Different from their parents (B) Slightly similar to their parents
 (C) Exact copies of their parents (D) None of these
82. In the human male, the tube used to carry both sperm and urine is the
 (A) Urethra (B) Testes (C) Vas deferens (D) Ureter

Assertion-Reason type Questions (83–85):

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.

83. **Assertion:** The cell is the basic unit of life.

Reason: Unicellular organisms do not have cells.

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

84. **Assertion:** The fertilised egg is called a zygote.

Reason: The zygote undergoes repeated divisions and later transforms into an embryo

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

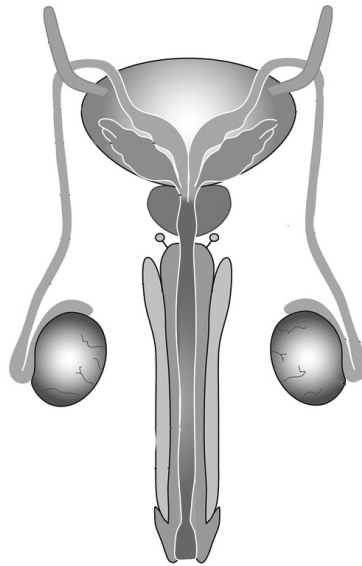
85. **Assertion:** The nucleolus is an organelle.

Reason: The nucleolus is a part of the nucleus.

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

Case Based Questions (86–90):

Study the diagram of the male reproductive system given below and answer the following questions:



86. The male gamete
- Ⓐ has a blunt tip and a short tail
 - Ⓑ is spherical in shape
 - Ⓒ has a pointed head and a long tail
 - Ⓓ has a pointed head but no tail
87. The male gonads
- Ⓐ lie outside the abdominal cavity
 - Ⓑ are protected by scrotal sacs
 - Ⓒ produce sperms
 - Ⓓ All statements about the gonads are correct
88. The coiled tube connecting the testes to vas deferens is
- Ⓐ Epididymis
 - Ⓑ Urinogenital duct
 - Ⓒ Penis
 - Ⓓ Urethra
89. Semen is _____
- Ⓐ sperms released through the testes into penis
 - Ⓑ sperms released through the penis along with urine
 - Ⓒ secretion of accessory reproductive glands
 - Ⓓ secretion of accessory reproductive glands + sperms

90. The middle piece of the sperm is called 'powerhouse of the sperm' because
- (A) It has mitochondria
 - (B) It has chromosomes and mitochondria
 - (C) It has nucleus with chromosomes in it
 - (D) It helps to pierce the ovum during fertilisation
91. Which of the following diseases has been eradicated from most parts of the world?
- (A) Tuberculosis
 - (B) Malaria
 - (C) Typhoid
 - (D) Small pox
92. Which of the following is a typical rabi crop in India?
- (A) Rice
 - (B) Wheat
 - (C) Maize
 - (D) Cotton
93. All the populations of different species co-existing and interacting within a specific area is called _____
- (A) Biome
 - (B) Community
 - (C) Biodiversity
 - (D) Biosphere
94. Which agricultural practice involves growing different crops in a specific succession in the same field?
- (A) Monoculture
 - (B) Polyculture
 - (C) Crop rotation
 - (D) Intercropping
95. Yeast is _____
- (A) unicellular fungi
 - (B) multicellular fungi
 - (C) unicellular algae
 - (D) multicellular algae
96. Choose the mismatched pair
- (A) Fallopian tube - Fertilisation
 - (B) Uterus - Pregnancy
 - (C) Ovary - Egg
 - (D) Vas deferens - Menstruation
97. Choose the incorrect option :
- (A) The urethra in females serve to carry both sperms and urine
 - (B) The sperms unite with the ovum in the oviduct
 - (C) Zygote → Embryo → Foetus
 - (D) Only one ovum is produced in a month by either ovaries.

[15]

98. The cell organelles lie suspended in the
Ⓐ nucleus Ⓑ cytoplasm Ⓒ vacuole Ⓓ all of these
99. A human cell which can change its shape is
Ⓐ Red blood cells Ⓑ Neurons Ⓒ Ovum Ⓓ WBC
100. Leaves are green in colour due to the presence of _____ in their cells
Ⓐ Vacuoles Ⓑ Nucleus Ⓒ Plastids Ⓓ Cell wall



Space For Rough Works

