# Monthly Progressive Test

## Class: X (G)

## Subject: PCMB

Academic Excellence Programme TECHNO ACE

**Test Booklet No.: MPT07 (G)** **Test Date:** 22112024

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

**Important Instructions :**

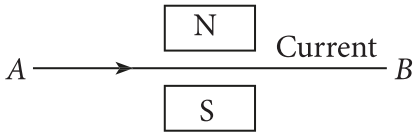
1. The Test is of 120 mins duration and the Test Booklet contains 100 multiple choice questions of single correct option only. There are four sections with four subjects. You have to attempt all 100 questions (Candidates are advised to read all 100 questions). Questions 1 to 25 contain Physics, Questions 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 MPT07(G)22112024.
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

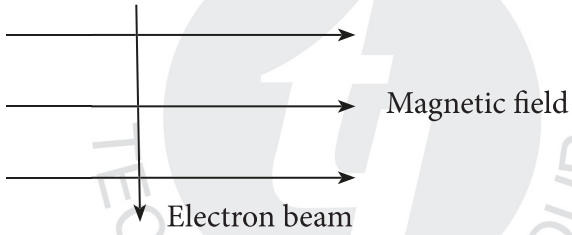
**1.** A magnetic field exerts no force on
Ⓐ an electric charge moving perpendicular to its direction
Ⓑ an unmagnetised iron bar
Ⓒ a stationary electric charge
Ⓓ a magnet

**2.** Which way does the current carrying wire in the diagram below tend to move:



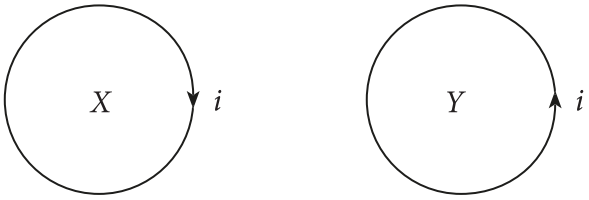

Ⓐ Upward Ⓑ Downward Ⓒ No movement Ⓓ Rotates clockwise

**3.** An electron beam enters a magnetic field at right angles to it as shown in figure




The direction of force acting on the electron beam will be
Ⓐ to the right Ⓑ to the left Ⓒ into the page Ⓓ out of the page

**4.**




Ⓐ Polarity of coil *X* is *N* and polarity of coil *Y* is *N*
Ⓑ Polarity of coil *X* is *S* and polarity of coil Y is *N*
Ⓒ Polarity of coil *X* is *S* and polarity of coil *Y* is *S*
Ⓓ Polarity of coil *X* is *N* and polarity of coil *Y* is *S*

**5.** In commercial D.C. motors, select the correct option
Ⓐ The assembly of soft iron core and coil is called an armature
Ⓑ The coil contains a large number of turns of the insulated copper wire
Ⓒ A powerful electromagnet is used in place of permanent magnet
Ⓓ All the above are correct

6. While defining a magnetic field line select the correct option/s
   Ⓐ It is a curve line around a magnet/a current carrying straight conductor such that the tangent at any point on the curve gives the direction of magnetic field at that point.
   Ⓑ In barmagnet, field lines are open curved lines.
   Ⓒ Field lines are always parallel to the axis of a bar magnet.
   Ⓓ All the above are correct.

7. The strength of the magnetic field around a wire as related to the strength of the electric current flowing in the wire is as per
   Ⓐ The strength of magnetic field B increases with the increase in the electric current
   Ⓑ The strength of magnetic field B is invariant with the increase/decrease in the electric current
   Ⓒ The strength of magnetic field B increases with the decrease in the electric current in wire
   Ⓓ All the above are correct

8. The direction of the magnetic field due to a current in a straight conducting wire is given by
   Ⓐ Planck's rule  Ⓑ Ohm's rule
   Ⓒ Thomson's rule  Ⓓ Maxwell's right hand thumb rule

9. Materials used to make permanent magnet
   Ⓐ Alnico  Ⓑ Carbon steel  Ⓒ Cobalt steel  Ⓓ All of the above

10. If we reverse the direction of current in a straight conducting wire in Oersted's experiment, then North pole of compass needle will also point in the opposite direction.
   Ⓐ False  Ⓑ Sometimes false  Ⓒ True  Ⓓ We cannot say

11. For a long straight current carrying wire, the strength of the magnetic field is inversely proportional to the distance from the wire.
   Ⓐ False  Ⓑ May be false  Ⓒ True  Ⓓ Data insufficient

12. Magnetic field at the centre of current carrying circular loop is along the axis of the loop.
   Ⓐ False  Ⓑ True  Ⓒ Maybe true  Ⓓ Data insufficient

**Assertion and Reason type:**

**A.** If assertion and Reason both are true, Reason is the correct explanation of assertion.
**B.** If assertion and Reason both are true,but reason is not correct explanation of assertion.
**C.** Assertion is true but reason is false.
**D.** Assertion is false but reason is true.

13. **Assertion:** If a coil has n turns,the magnetic field due to the coil is n times stronger than that due to a single turn.

**Reason:** The strength of the magnetic field due to a current carrying circular coil is proportional to the number of turns.

14. **Assertion:** More the strength of current in the circular coil, more is the strength of magnetic field.

**Reason:** Strength of the magnetic field produced by an electric current is directly proportional to the current.

15. **Assertion:** If the fingers of the right hand are curled along the direction of the current in a loop,the stretched thumb gives the direction of the magnetic field.

**Reason:** The above is not Right Hand Thumb rule for current loop.

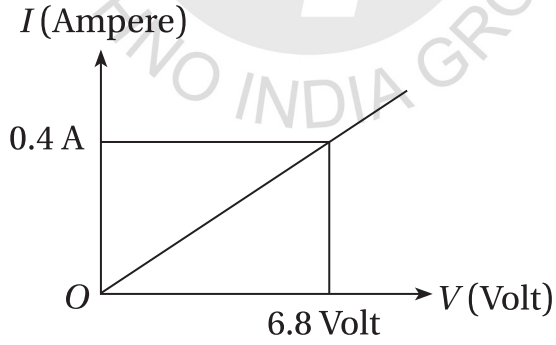
16. A lens of focal length 12 cm forms an erect image three times the size of the object. The distance between object and image is

Ⓐ 8 cm Ⓑ 24 cm Ⓒ 20 cm Ⓓ 16 cm

17. If potential difference across a resistor 2 ohm is 10 volt, then current is

Ⓐ 5A Ⓑ 3A Ⓒ 2A Ⓓ 6A

18. From the above mentioned graph,the resistance of the circuit is




Ⓐ 17 ohm Ⓑ 15 ohm Ⓒ 13 ohm Ⓓ 9 ohm

19. **Assertion:** A concave lens is also called a diverging lens.

**Reason:** A parallel beam of light incident on a concave lens diverges on the other side.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

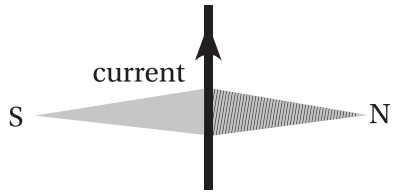
20. **Assertion:** The power of a convex lens is positive.

**Reason:** The power of a concave lens is negative.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

**21. Case-Based Questions : 21-23**

In Oersted's Experiment a current carrying wire passes just over a magnetic needle perpendicular to it, as shown. Deflection of North Pole of the needle will be




Ⓐ Upward on the plane of paper
Ⓑ Downward on the plane of paper
Ⓒ Upward off paper
Ⓓ Downward into paper

**22.** If the current is reversed then deflection of South Pole will be

Ⓐ Upward on the plane of paper
Ⓑ Downward on the plane of paper
Ⓒ Upward off paper
Ⓓ Downward into paper

**23.** If we want to make North Pole pointing upward off the plane of paper, we must

Ⓐ Increase the current
Ⓑ Decrease the current
Ⓒ Current be reversed
Ⓓ Current be placed below needle

**24.** In Fleming's left hand rule magnetic field is taken along

Ⓐ Thumb
Ⓑ Forefinger
Ⓒ Middle Finger
Ⓓ Ring Finger

**25.** The magnetic field of a solenoid coil does not depend on

Ⓐ the strength of current
Ⓑ number of turns
Ⓒ soft iron core
Ⓓ area of cross-section of coil

## Chemistry

**26.** The major compound present in marsh gas is

Ⓐ $CH_4$
Ⓑ $C_8H_{18}$
Ⓒ $C_2H_2$
Ⓓ No option is correct

**27.** When ethanol reacts with sodium metal then the gas released is

Ⓐ $O_2$ Ⓑ $CH_4$ Ⓒ $H_2$ Ⓓ $CO_2$

**28.** Which of the following is an ester ?

Ⓐ $CH_3COOC_2H_5$
Ⓑ $CH_3OC_2H_5$
Ⓒ $CH_3CH_2COC_2H_5$
Ⓓ $CH_3COONH_4$

**29.** Ethanoic acid does not react with

Ⓐ NaCl Ⓑ $Na_2CO_3$ Ⓒ NaOH Ⓓ $NaHCO_3$

**30.** Cleansing action of a soap is associated with

Ⓐ Water solubility Ⓑ Micelle formation

Ⓒ Boiling point Ⓓ Density of the material

**31.** How does a carbon atom achieves its nearest noble gas configuration

Ⓐ By accepting 2 electrons Ⓑ By sharing 4 electrons

Ⓒ By sharing 2 electrons Ⓓ By releasing 2 electrons

**32.** Among the given compounds, which has double bond between two carbon atoms ?

Ⓐ $C_2H_6$ Ⓑ $C_2H_2$ Ⓒ $C_2H_5OH$ Ⓓ $C_2H_4$

**33.** Correct statement about allotrops is

Ⓐ Same physical properties Ⓑ Same chemical propertiess

Ⓒ Different chemical properties Ⓓ Different elements are present

**34.** The reagent used to form $CH_3COOH$ from $C_2H_5OH$ is _____

Ⓐ Concentrated $H_2SO_4$ Ⓑ $CaCl_2$

Ⓒ Alkaline $KMnO_4$ solution Ⓓ $NaHCO_3$

**35.** Coal and petroleum are termed as fossil fuels because

Ⓐ They are used to preserve fossils

Ⓑ All fossils are formed inside coal and petroleum

Ⓒ They are formed from the remains of the ancient botanical and zoological species

Ⓓ They are collected deep from the earth's crust

**36.** Carbon forms straight chain and giant molecular network. This property is known as _____

Ⓐ Allotropy Ⓑ Carbonization Ⓒ Catenation Ⓓ Polymerization

**37.** _____ is used as a preservative in pickles

Ⓐ $CH_3COOH$ Ⓑ $CH_3OH$ Ⓒ HCOOH Ⓓ $CH_3CH_2OH$

**Assertion Reason Type Question (38):**

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

**38.** **Assertion (A):** $CH_3OH$ and $C_2H_5OH$ are allotrops to each other

**Reason (R):** Molar mass of $C_2H_5OH$ is higher than $CH_3OH$

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

**Case Based Questions (39):**

Read the passage carefully and select the correct options

The organic compounds always contain carbon and hydrogen and in some molecules, non - carbon elements are also present. The part in which non - carbon elements are present is known as functional groups. Functional groups give the idea of both chemical and physical properties of the organic molecules. Some organic functional groups are carboxylic acid, aldehyde, amine, alcohol, halide, ether, etc.

**39.** Functional groups give the idea of

Ⓐ physical properties of the molecule only

Ⓑ chemical properties of the molecule only

Ⓒ bonding pattern of the molecule only

Ⓓ both physical and chemical properties of the molecule

**40.** Which of the following does not contain a functional group ?

Ⓐ Butane Ⓑ Ethanoic acid Ⓒ Propanone Ⓓ Ethyl alcohol

**41.** Which of the following element cannot form more than one oxide ?

Ⓐ Carbon Ⓑ Boron Ⓒ Sulphur Ⓓ Iron

**42.** Which ore needs calcination ?

Ⓐ Carbonate Ⓑ Chloride Ⓒ Sulphide Ⓓ Bromide

**43.** When a small amount of phenolphthalein is added to dilute sulphuric acid then the colour of the solution becomes

Ⓐ Colourless to blue Ⓑ Colourless to pink

Ⓒ Soution remains colourless Ⓓ Colourless to green

**44.** In which of the following option both the elements have same number of electrons in their outermost shells ?

Ⓐ Nitrogen and phosphorus Ⓑ Calcium and carbon

Ⓒ Chlorine and sodium Ⓓ Nitrogen and boron

**45.** When quick lime reats with water then calcium hydroxide is formed. It is an example of

Ⓐ Combination reaction Ⓑ Displacement reaction

Ⓒ Double displacement reaction Ⓓ Decomposition reaction

**46.** Ethanoic acid reacts with sodium bicarbonate and the correct statements are

(I) The colour of the released gas is red

(II) The solution remains colourless after the end of the reaction

(III) Water is produced as the byproduct

Ⓐ I, II, III Ⓑ I, II Ⓒ II, III Ⓓ I, III

**47.** Wrong statements are

(I) Both carboxylic acid and amine functional groups contain double bonds

(II) In case of ether molecules, the central oxygen atom is bonded with three alkyl groups

(III) The correct IUPAC name of $CH_3CH_2COOCH_2CH_2CH_3$ is propyl propanoate

Ⓐ I, II, III Ⓑ I, II Ⓒ II, III Ⓓ I, III

**48.** Diamond does not conduct electricity because

Ⓐ It does not contain free electrons Ⓑ It has crystalline structure

Ⓒ It contains only carbon atoms Ⓓ It has very high melting point value

**49.** What is the correct percentage of acetic acid in vinegar ?

Ⓐ 10 - 15% Ⓑ 4 - 6% Ⓒ 20 - 25% Ⓓ 1 - 3%

**Assertion Reason Type Question (50):**

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

**50.** **Assertion (A):** Methane is a poor conductor of electricity

**Reason (R):** Methane is a gaseous compound

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

## Mathematics

**51.** If the radius and height of a cylinder are in ratio 5 : 7 and its volume is 550 $cm^3$, then its radius is equal to (Take $\pi = \frac{22}{7}$).

Ⓐ 6 cm Ⓑ 7 cm Ⓒ 5 cm Ⓓ 10 cm

**52.** A tent is in the form of a cylinder of diameter 8 m and height 2 m, surmounted by a cone of equal base and height 3 m. The canvas used for making the tent is equal to

Ⓐ 36 $\pi$ $m^2$ Ⓑ 28 $\pi$ $m^2$ Ⓒ 24 $\pi$ $m^2$ Ⓓ 32 $\pi$ $m^2$

**53.** A river 3 m deep and 60 m wide is flowing at the rate of 2.4 km/h. The amount of water running into the sea per minute is

Ⓐ 6000 $m^3$ Ⓑ 6400 $m^3$

Ⓒ 6800 $m^3$ Ⓓ 7200 $m^3$

**54.** Find the mean of the following distribution

| x: | 4 | 6 | 9 | 10 | 15 |
|---|---|---|---|---|---|
| f: | 5 | 10 | 10 | 7 | 8 |

Ⓐ 9 Ⓑ 15 Ⓒ 18 Ⓓ none of these

**55.** Find the mode of the following data

26, 16, 19, 48, 19, 20, 34, 15, 19, 20, 21, 24, 19, 22, 16, 18, 20, 16, 19

Ⓐ 48 Ⓑ 20 Ⓒ 19 Ⓓ 24

**56.** Tickets numbered from 1 to 18 are mixed up together and then a ticket is drawn at random. Find the probability that the ticket has a number which is a multiple of 2 or 3.

Ⓐ $\frac{1}{3}$ Ⓑ $\frac{3}{5}$ Ⓒ $\frac{2}{3}$ Ⓓ $\frac{5}{6}$

**57.** If there are two children in a family, find the probability that there is atleast one girl in the family.

Ⓐ $\frac{1}{4}$ Ⓑ $\frac{1}{2}$ Ⓒ $\frac{3}{4}$ Ⓓ 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) :** If the height of a cone is 24 cm and radius of the base is 7 cm, then the half of the slant height is 15 cm.

**Reason (R) :** If $r$ be the radius and $h$ be the height of the cone, then slant height = $\sqrt{h^2+r^2}$

Ⓐ a Ⓑ b Ⓒ c Ⓓ d

**59.** **Assertion (A) :** If the values of mean, median and mode are 63, m and 60 respectively then m is 62.

**Reason (R) :** Median = $\frac{\text{Mean} + \text{Mode}}{2}$

Ⓐ a Ⓑ b Ⓒ c Ⓓ d

**Case Study Based Questions (60–62):**

TIPGS, Kolkata is organizing a sports day with various events. Class X has participated in three events : the 100 meter race, the long jump and the short-put.

Data : (i) Total number of students in class X = 40

(ii) Number of students who participated in the 100 meter race = 25

(iii) Number of students who participated in the long jump = 20

(iv) Number of students who participated in the shot-put = 15

(v) Number of students who participated in all three events = 5

Based on this information answer the following questions.

**60.** What is the probability that randomly selected student from class X participated in the 100 meter race?

Ⓐ $\frac{5}{8}$ Ⓑ $\frac{3}{8}$ Ⓒ $\frac{1}{2}$ Ⓓ 1

**61.** What is the probability that randomly selected student from class X participated in the long jump?

Ⓐ $\frac{3}{8}$ Ⓑ $\frac{1}{2}$ Ⓒ $\frac{5}{8}$ Ⓓ none of these

**62.** What is the probability that randomly selected student from class X participated in the shot-put ?

Ⓐ 1 Ⓑ 0 Ⓒ $\frac{3}{8}$ Ⓓ none of these

**63.** The diameter of a metallic sphere is 6 cm and it is melted to draw a wire of diameter 0.2 cm. The length of the wire will be

Ⓐ 24 m Ⓑ 28 m Ⓒ 32 m Ⓓ 36 m

**64.** Mean of all possible factors of 10 is

Ⓐ 6 Ⓑ 2 Ⓒ 4.5 Ⓓ 5

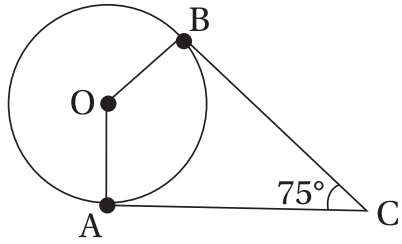
**65.** What is the probability that a leap year has 53 Sundays?

Ⓐ $\frac{1}{7}$ Ⓑ $\frac{2}{7}$ Ⓒ $\frac{3}{7}$ Ⓓ 1

**66.** If $\sec\theta = \frac{5}{4}$, then find the value of $\frac{1-\tan^2\theta}{1+\tan^2\theta}$.

Ⓐ $\frac{9}{25}$ Ⓑ $\frac{9}{16}$ Ⓒ $\frac{7}{25}$ Ⓓ $\frac{7}{16}$

**67.** In figure, O is the center of the circle, CA is tangent at A and CB is tangent at B drawn to the circle. If $\angle ACB = 75°$, then $\angle AOB =$




Ⓐ 75° Ⓑ 85° Ⓒ 95° Ⓓ 105°

**68.** The distance between the points $(a, b)$ and $(-a, -b)$ is

Ⓐ $a^2 + b^2$ Ⓑ $\sqrt{a^2+b^2}$ Ⓒ 0 Ⓓ $2\sqrt{a^2+b^2}$

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

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

**70.** Three chairs and two tables cost ₹1850. Five chairs and three tables cost ₹2850. Then the total cost of one chair and one table is

Ⓐ ₹800 Ⓑ ₹850 Ⓒ ₹900 Ⓓ ₹950

**71.** A metallic sphere of radius 16 cm is melted and recast into small spheres each of radius 2 cm. How many small spheres can be obtained?

Ⓐ 512 Ⓑ 510 Ⓒ 514 Ⓓ 515

**72.** A right circular cylindrical container of base radius 6 cm and height 15 cm is full of ice cream. The ice cream is to be filled in cones of height 9 cm and base radius 3 cm, having a hemispherical cap. Find the number of cones needed to empty the container.

Ⓐ 14 Ⓑ 15 Ⓒ 12 Ⓓ 10

**73.** The mean of the data 1, 2, 3 ..... , n is

Ⓐ $\frac{(n+1)}{2}$ Ⓑ $\frac{(2n+1)}{6}$ Ⓒ $\frac{(2n-1)}{6}$ Ⓓ $\frac{n(n+1)}{6}$

**74.** A box contains 5 red marbles, 8 white marbles and 4 green marbles. One marble is taken out of the box at random. What is the probability that the marble taken out will be not green?

Ⓐ $\frac{12}{17}$ Ⓑ $\frac{15}{17}$ Ⓒ $\frac{13}{17}$ Ⓓ None of these

**75.** Savita and Hamida are two friends. What is the probability that they will have different birthdays (ignoring leap year)?

Ⓐ $\frac{364}{365}$ Ⓑ $\frac{1}{365}$ Ⓒ $\frac{363}{365}$ Ⓓ 1

## Biology

**76.** The number of chromosomes in a human cell is

Ⓐ 23 pairs Ⓑ 26 pairs Ⓒ 46 pairs Ⓓ 49 pairs

**77.** When we say a plant is tall, we are talking about its

Ⓐ Phenotype Ⓑ Genotype Ⓒ Both Ⓓ None

**78.** The genotype of the F1 individuals produced in Mendel's monohybrid cross is _____ .

Ⓐ TT Ⓑ Tt Ⓒ tt Ⓓ None

**79.** Ozone depletion is caused by

Ⓐ $CO_2$ Ⓑ BHC Ⓒ CFC Ⓓ All

**80.** 3 : 1 is the

Ⓐ Phenotypic ratio of monohybrid cross Ⓑ Phenotypic ratio of dihybrid cross

Ⓒ Genotypic ratio of monohybrid cross Ⓓ Genotypic ratio of dihybrid cross.

**81.** Amount of energy transferred from one trophic level to the next is

Ⓐ 1.5% Ⓑ 10% Ⓒ 15% Ⓓ 20%

**82.** Select the correct option :

Ⓐ Human males are homogametic

Ⓑ Human males are heterogametic

Ⓒ Human females are heterogametic

Ⓓ Both human males and females are heterogametic

**Assertion-Reason type Questions (83–86):**

**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:** Dominant allele is an allele whose phenotype expresses itself even in the presence of another allele of that gene.

**Reason:** It is represented by capital letter

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

84. **Assertion:** The sex of the children will be determined by the chromosomes received from the mother

A human male may produce sperms, either with one X or one Y chromosome

**Reason:** A human male produce sperms, either with one X or one Y chromosome.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

85. **Assertion:** Food chains generally consists of 3 or 4 steps

**Reason:** When green plants are eaten by primary consumers, a great deal of energy is lost as heat to the environment.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

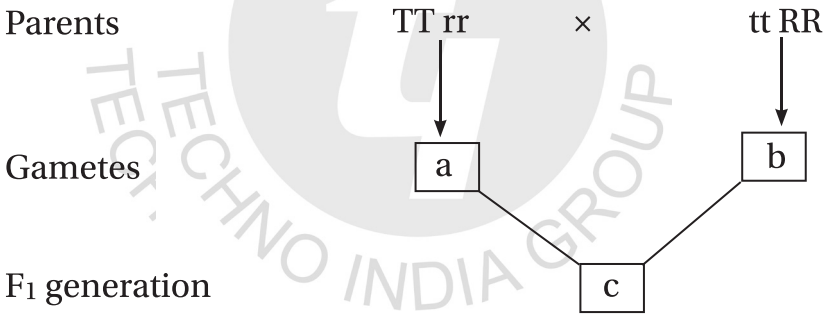
86. **Assertion:** Forests, ponds and lakes are natural ecosystems.

**Reason:** Gardens and crop fields are human made ecosystems.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

**Case Based Questions (87–90):**

Study the cross given below :




87. If TT rr stands for tall plans with wrinkled seeds, the phenotype of the second parent, tt RR, will be _____.

Ⓐ dwarf with wrinkled seeds Ⓑ dwarf with round seeds

Ⓒ tall with round seeds Ⓓ None

88. What is 'a'?

Ⓐ TT Ⓑ Tr Ⓒ Trr Ⓓ tR

89. What is 'b'?

Ⓐ TT Ⓑ Tr Ⓒ T rr Ⓓ t R

90. What will be the phenotype of c?

Ⓐ Tall plant with wrinkled seeds Ⓑ Tall plant with round seeds

Ⓒ Dwarf plant with wrinkled seeds Ⓓ Dwarf plant with round seeds

**91.** In tobacco plant, the male gamete has 24 chromosomes. What will be the number of chromosomes in the zygote?

Ⓐ 12 Ⓑ 24 Ⓒ 48 Ⓓ 72

**92.** Regeneration is found in

Ⓐ Yeast Ⓑ Leech

Ⓒ Hydra Ⓓ Ascaris

**93.** Urine leaves the kidney through

Ⓐ Urethra Ⓑ Collecting duct

Ⓒ Renal vein Ⓓ Ureter

**94.** A mechanical barrier to avoid pregnancy is

Ⓐ Condom Ⓑ Contraceptive pills

Ⓒ Surgical methods Ⓓ Abortion

**95.** C-shaped rings of cartilage are present on the

Ⓐ Trachea only Ⓑ Trachea and bronchi

Ⓒ Trachea, bronchi and bronchioles Ⓓ Bronchi and bronchioles

**Assertion-Reason type Questions (96–97):**

**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.

**96.** **Assertion:** Mendel selected the pea plants for his experiments

**Reason:** Pea plants do not show contrasting traits

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

**97.** **Assertion:** In pea plants, dwarfness is the recessive trait.

**Reason:** The trait of dwarfness only expresses itself in the homozygous condition and is dominated by the trait of tallness.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

**Case Based Questions (98–100):**

Read the given passage and answer the following questions :

The length and complexity of food chains vary greatly. Each organism is eaten by two or more other kinds of organisms, which in turn, are eaten by several other types of organisms. This links several food chains and forms a complex relationship between food chains in nature.

**98.** The complex interrelationship between different food chains is called a _____ .

Ⓐ Food web
Ⓑ Trophic level
Ⓒ Food pyramid
Ⓓ None.

**99.** Consider the food chain : Grass ⟶ Deer ⟶ Tiger. What does each step of the food chain, viz., grass, deer and tiger, represent ?

Ⓐ Consumers
Ⓑ Trophic levels
Ⓒ Food level
Ⓓ All

**100.** Choose the correct statement about the given foodchain.

Ⓐ The energy transferred to the deer will never come back to grass again.
Ⓑ The energy of the deer will be transferred partly to the tiger.
Ⓒ The energy transferred from grass to deer will be less than the energy transferred from deer to tiger.
Ⓓ All the statements are correct.

## Space For Rough Works