

MHT CET 2025 Apr 22 Shift 1 Question Paper with Solutions

Time Allowed :3 Hour

Maximum Marks :200

Total Questions :200

General Instructions

Read the following instructions very carefully and strictly follow them:

1. The test is of 3 hours duration.
2. The question paper consists of 150 questions. The maximum marks are 200.
3. There are three parts in the question paper consisting of Physics, Chemistry and Mathematics having 50 questions in each part of equal weightage.

1. A body of mass $m = 2$ kg is moving with a velocity of 5 m/s. What is the kinetic energy of the body?

- (1) 25 J
- (2) 10 J
- (3) 50 J
- (4) 100 J

Correct Answer: (1) 25 J

Solution:

Step 1: Use the formula for kinetic energy

$$\text{Kinetic Energy} = \frac{1}{2}mv^2$$

Given: - Mass $m = 2$ kg - Velocity $v = 5$ m/s

$$\text{Kinetic Energy} = \frac{1}{2} \times 2 \times (5)^2 = 25 \text{ J}$$

Answer: Therefore, the kinetic energy of the body is 25 J. So, the correct answer is option (1).

Quick Tip

Remember: Kinetic energy is always positive, and the formula is Kinetic Energy = $\frac{1}{2}mv^2$.

2. A simple pendulum has a length of $L = 2$ m. What is the time period of the pendulum? (Assume $g = 9.8 \text{ m/s}^2$)

- (1) 2 s
- (2) 1 s
- (3) 3 s
- (4) 4 s

Correct Answer: (1) 2 s

Solution:

Step 1: Use the formula for the time period of a simple pendulum

$$T = 2\pi\sqrt{\frac{L}{g}}$$

Given: - Length $L = 2$ m - Gravitational acceleration $g = 9.8 \text{ m/s}^2$

$$T = 2\pi\sqrt{\frac{2}{9.8}} \approx 2 \text{ s}$$

Answer: Therefore, the time period of the pendulum is 2 s. So, the correct answer is option

(1).

Quick Tip

Remember: The time period of a simple pendulum depends on the length and gravitational acceleration.

3. A 5Ω resistor and a 10Ω resistor are connected in parallel. What is the equivalent resistance of the combination?

- (1) 3.33Ω

- (2) $15\ \Omega$
- (3) $7.5\ \Omega$
- (4) $2\ \Omega$

Correct Answer: (1) $3.33\ \Omega$

Solution:

Step 1: Formula for equivalent resistance in parallel

When resistors are connected in parallel, the reciprocal of the equivalent resistance R_{eq} is given by:

$$\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2}$$

Step 2: Substitute the values of resistances

Given: - $R_1 = 5\ \Omega$ - $R_2 = 10\ \Omega$

$$\frac{1}{R_{eq}} = \frac{1}{5} + \frac{1}{10} = \frac{2}{10} + \frac{1}{10} = \frac{3}{10}$$

Step 3: Calculate the equivalent resistance

$$R_{eq} = \frac{10}{3} = 3.33\ \Omega$$

Answer: Therefore, the equivalent resistance of the combination is $3.33\ \Omega$. So, the correct answer is option (1).

Quick Tip

Remember: For resistors in parallel, the equivalent resistance is always less than the smallest resistor.

4. An object of mass $0.5\ \text{kg}$ is moving with a velocity of $10\ \text{m/s}$. What is the momentum of the object?

- (1) $5\ \text{kg} \cdot \text{m/s}$
- (2) $10\ \text{kg} \cdot \text{m/s}$
- (3) $50\ \text{kg} \cdot \text{m/s}$

(4) $0.5 \text{ kg} \cdot \text{m/s}$

Correct Answer: (1) $5 \text{ kg} \cdot \text{m/s}$

Solution:

Step 1: Formula for momentum

Momentum p is given by the product of mass and velocity:

$$p = mv$$

Step 2: Substitute the given values

Given: - Mass $m = 0.5 \text{ kg}$ - Velocity $v = 10 \text{ m/s}$

$$p = 0.5 \times 10 = 5 \text{ kg} \cdot \text{m/s}$$

Answer: Therefore, the momentum of the object is $5 \text{ kg} \cdot \text{m/s}$. So, the correct answer is option (1).

Quick Tip

Momentum is a vector quantity, but in this case, we're only concerned with its magnitude.

5. A metal rod of length $L = 0.8 \text{ m}$ is rotating about its center with an angular velocity $\omega = 10 \text{ rad/s}$. What is the linear velocity of a point on the rod at a distance $r = 0.4 \text{ m}$ from the center?

(1) 4 m/s

(2) 8 m/s

(3) 2 m/s

(4) 6 m/s

Correct Answer: (1) 4 m/s

Solution:

Step 1: Formula for linear velocity

The linear velocity v of a point on a rotating object is given by:

$$v = r\omega$$

where: - r is the radius (distance from the center), - ω is the angular velocity.

Step 2: Substitute the given values

Given: - Radius $r = 0.4$ m - Angular velocity $\omega = 10$ rad/s

$$v = 0.4 \times 10 = 4 \text{ m/s}$$

Answer: Therefore, the linear velocity of the point on the rod is 4 m/s. So, the correct answer is option (1).

Quick Tip

Remember: Linear velocity is directly proportional to both the radius and the angular velocity.

6. A $10 \mu\text{C}$ charge is placed in an electric field of $5 \times 10^3 \text{ N/C}$. What is the force experienced by the charge?

- (1) $5 \times 10^{-2} \text{ N}$
- (2) $5 \times 10^{-3} \text{ N}$
- (3) $5 \times 10^2 \text{ N}$
- (4) $5 \times 10^4 \text{ N}$

Correct Answer: (1) $5 \times 10^{-2} \text{ N}$

Solution:

Step 1: Use the formula for force in an electric field

The force F experienced by a charge q in an electric field E is given by:

$$F = qE$$

Step 2: Substitute the given values

Given: - Charge $q = 10 \mu\text{C} = 10 \times 10^{-6} \text{ C}$ - Electric field $E = 5 \times 10^3 \text{ N/C}$

$$F = (10 \times 10^{-6}) \times (5 \times 10^3) = 5 \times 10^{-2} \text{ N}$$

Answer: Therefore, the force experienced by the charge is $5 \times 10^{-2} \text{ N}$. So, the correct answer is option (1).

Quick Tip

Remember: The force in an electric field depends directly on both the charge and the magnitude of the electric field.

7. A body of mass 1.5 kg is dropped from a height of 20 m. What is its speed just before hitting the ground? (Assume $g = 9.8 \text{ m/s}^2$)

- (1) 19.8 m/s
- (2) 14 m/s
- (3) 20 m/s
- (4) 9.8 m/s

Correct Answer: (1) 19.8 m/s

Solution:

Step 1: Use the equation for final velocity in free fall

For an object dropped from a height, the final velocity v just before hitting the ground can be calculated using the equation:

$$v = \sqrt{2gh}$$

where: - g is the acceleration due to gravity, - h is the height from which the object is dropped.

Step 2: Substitute the given values

Given: - $g = 9.8 \text{ m/s}^2$ - $h = 20 \text{ m}$

$$v = \sqrt{2 \times 9.8 \times 20} = \sqrt{392} \approx 19.8 \text{ m/s}$$

Answer: Therefore, the speed of the body just before hitting the ground is 19.8 m/s. So, the correct answer is option (1).

Quick Tip

Remember: When an object is dropped from a height, its initial velocity is zero, and its final velocity depends only on the height and gravity.

8. A 2 kg mass is attached to a spring with spring constant $k = 200 \text{ N/m}$. If the mass is displaced by 0.1 m, what is the potential energy stored in the spring?

- (1) 1 J
- (2) 0.5 J
- (3) 2 J
- (4) 0.2 J

Correct Answer: (1) 1 J

Solution:

Step 1: Use the formula for potential energy stored in a spring

The potential energy U stored in a spring is given by the formula:

$$U = \frac{1}{2}kx^2$$

where: - k is the spring constant, - x is the displacement from the equilibrium position.

Step 2: Substitute the given values

Given: - Spring constant $k = 200 \text{ N/m}$ - Displacement $x = 0.1 \text{ m}$

$$U = \frac{1}{2} \times 200 \times (0.1)^2 = \frac{1}{2} \times 200 \times 0.01 = 1 \text{ J}$$

Answer: Therefore, the potential energy stored in the spring is 1 J. So, the correct answer is option (1).

Quick Tip

Remember: The potential energy stored in a spring is proportional to the square of the displacement.

9. A car travels at a speed of 72 km/h. What is the car's speed in meters per second?

- (1) 20 m/s
- (2) 18 m/s
- (3) 25 m/s
- (4) 30 m/s

Correct Answer: (1) 20 m/s

Solution:

Step 1: Convert the speed from km/h to m/s

To convert a speed from km/h to m/s, use the following conversion factor:

$$1 \text{ km/h} = \frac{1000}{3600} \text{ m/s} = \frac{5}{18} \text{ m/s}$$

Step 2: Apply the conversion

Given: - Speed of the car = 72 km/h

$$\text{Speed in m/s} = 72 \times \frac{5}{18} = 20 \text{ m/s}$$

Answer: Therefore, the speed of the car is 20 m/s. So, the correct answer is option (1).

Quick Tip

Remember: To convert from km/h to m/s, multiply by $\frac{5}{18}$.

10. What is the molar mass of sulfur dioxide (SO₂)?

- (1) 64 g/mol
- (2) 32 g/mol
- (3) 48 g/mol

(4) 44 g/mol

Correct Answer: (1) 64 g/mol

Solution:

Step 1: Calculate the molar mass of SO_2

The molar mass of a compound is the sum of the atomic masses of its elements, with the appropriate number of atoms.

- Atomic mass of sulfur (S) = 32 g/mol - Atomic mass of oxygen (O) = 16 g/mol

Step 2: Add the atomic masses

For SO_2 , there is one sulfur atom and two oxygen atoms:

$$\text{Molar mass of } \text{SO}_2 = 32 + 2 \times 16 = 32 + 32 = 64 \text{ g/mol}$$

Answer: Therefore, the molar mass of sulfur dioxide (SO_2) is 64 g/mol. So, the correct answer is option (1).

Quick Tip

Remember: The molar mass of a compound is the sum of the atomic masses of its constituent elements, multiplied by the number of atoms of each element in the compound.

11. Which of the following is the correct order of increasing acidity for the following compounds? CH_3OH , CH_3COOH , HCl , and H_2SO_4 .

(1) $\text{CH}_3\text{OH} < \text{CH}_3\text{COOH} < \text{HCl} < \text{H}_2\text{SO}_4$

(2) $\text{CH}_3\text{OH} < \text{HCl} < \text{CH}_3\text{COOH} < \text{H}_2\text{SO}_4$

(3) $\text{HCl} < \text{CH}_3\text{OH} < \text{CH}_3\text{COOH} < \text{H}_2\text{SO}_4$

(4) $\text{H}_2\text{SO}_4 < \text{CH}_3\text{COOH} < \text{HCl} < \text{CH}_3\text{OH}$

Correct Answer: (1) $\text{CH}_3\text{OH} < \text{CH}_3\text{COOH} < \text{HCl} < \text{H}_2\text{SO}_4$

Solution:

Step 1: Understanding the acidity of the compounds

- CH_3OH (Methanol) is a weak alcohol and a weak acid. - CH_3COOH (Acetic acid) is a weak acid, but stronger than methanol due to the presence of the carboxyl group (COOH). -

HCl (Hydrochloric acid) is a strong acid due to its complete dissociation in water. - H₂SO₄ (Sulfuric acid) is a very strong acid, known for its strong dissociation and ability to donate two protons.

Step 2: Rank the acidity based on strength

- Methanol is the weakest acid. - Acetic acid is stronger than methanol but weaker than strong acids like HCl and H₂SO₄. - Hydrochloric acid is stronger than acetic acid. - Sulfuric acid is the strongest acid in this list.

Step 3: Correct order of increasing acidity

Thus, the order of increasing acidity is:



Answer: Therefore, the correct answer is option (1).

Quick Tip

Remember: Acidity increases as you move from weaker acids like alcohols to stronger acids like sulfuric acid.

12. What is the pH of a 0.001 M solution of hydrochloric acid (HCl)?

- (1) 3
- (2) 1
- (3) 7
- (4) 4

Correct Answer: (1) 3

Solution:

Step 1: Recall the formula for pH

The pH of a solution is given by the formula:

$$\text{pH} = -\log[\text{H}^+]$$

where $[\text{H}^+]$ is the concentration of hydrogen ions in the solution.

Step 2: Use the concentration of HCl

Hydrochloric acid (HCl) is a strong acid, so it dissociates completely in water:



Therefore, the concentration of H^+ ions is the same as the concentration of HCl, i.e., 0.001 M.

$$[\text{H}^+] = 0.001 \text{ M}$$

Step 3: Calculate the pH

Now, substitute the concentration of H^+ into the pH formula:

$$\text{pH} = -\log(0.001) = 3$$

Answer: Therefore, the pH of the 0.001 M HCl solution is 3. So, the correct answer is option (1).

Quick Tip

Remember: For strong acids like HCl, the concentration of H^+ ions is equal to the concentration of the acid.

13. Which of the following is the correct electron configuration for an oxygen atom?

- (1) $1s^2 2s^2 2p^4$
- (2) $1s^2 2s^2 2p^6$
- (3) $1s^2 2s^2 2p^5$
- (4) $1s^2 2s^2 2p^3$

Correct Answer: (1) $1s^2 2s^2 2p^4$

Solution:

Step 1: Recall the electron configuration for oxygen

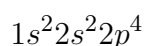
Oxygen (O) has an atomic number of 8, meaning it has 8 electrons.

Step 2: Distribute the electrons in orbitals

The electron configuration follows the Aufbau principle, which fills the lowest energy orbitals first:

- The first shell can hold up to 2 electrons, so the $1s$ orbital is filled first: $1s^2$. - The second shell can hold up to 8 electrons, so the $2s$ orbital is filled next: $2s^2$. - After that, the $2p$ orbital starts filling. Oxygen has 8 electrons in total, so the next 4 electrons will go into the $2p$ orbital: $2p^4$.

Therefore, the electron configuration of oxygen is:



Answer: Therefore, the correct electron configuration for an oxygen atom is $1s^2 2s^2 2p^4$. So, the correct answer is option (1).

Quick Tip

Remember: Electron configuration follows the Aufbau principle, filling lower-energy orbitals first.

14. What is the empirical formula of glucose, whose molecular formula is $C_6H_{12}O_6$?

- (1) CH_2O
- (2) $C_2H_4O_2$
- (3) $C_3H_6O_3$
- (4) $C_6H_6O_3$

Correct Answer: (1) CH_2O

Solution:

Step 1: Define the empirical formula

The empirical formula of a compound represents the simplest whole-number ratio of the elements present in the compound.

The molecular formula of glucose is $C_6H_{12}O_6$.

Step 2: Simplify the ratio of the elements

The ratio of the elements in glucose is: - Carbon (C): 6 atoms - Hydrogen (H): 12 atoms - Oxygen (O): 6 atoms

We simplify this ratio by dividing each number of atoms by the greatest common divisor (GCD), which is 6.

$$\frac{6}{6} : \frac{12}{6} : \frac{6}{6} = 1 : 2 : 1$$

Thus, the empirical formula is CH₂O.

Answer: Therefore, the empirical formula of glucose is CH₂O. So, the correct answer is option (1).

Quick Tip

Remember: The empirical formula is the simplest whole-number ratio of atoms in a compound. To find it, divide the subscripts in the molecular formula by their GCD.

15. How many grams of NaOH are required to neutralize 25 mL of 0.1 M HCl solution?

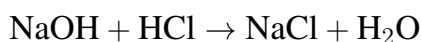
- (1) 0.25 g
- (2) 0.5 g
- (3) 1.0 g
- (4) 2.0 g

Correct Answer: (1) 0.25 g

Solution:

Step 1: Write the balanced equation for the neutralization reaction

The neutralization reaction between sodium hydroxide (NaOH) and hydrochloric acid (HCl) is:



From this, we see that one mole of NaOH neutralizes one mole of HCl.

Step 2: Calculate the moles of HCl

The number of moles of HCl is given by:

$$\text{Moles of HCl} = \text{Molarity} \times \text{Volume} = 0.1 \text{ M} \times 0.025 \text{ L} = 0.0025 \text{ moles}$$

Step 3: Determine the moles of NaOH required

Since the reaction is in a 1:1 molar ratio, the moles of NaOH required will be equal to the moles of HCl:

$$\text{Moles of NaOH} = 0.0025 \text{ moles}$$

Step 4: Calculate the mass of NaOH required

To find the mass of NaOH required, we use the molar mass of NaOH:

$$\text{Molar mass of NaOH} = 40 \text{ g/mol}$$

The mass of NaOH is:

$$\text{Mass of NaOH} = \text{Moles of NaOH} \times \text{Molar mass of NaOH} = 0.0025 \times 40 = 0.1 \text{ g}$$

Answer: Therefore, the mass of NaOH required to neutralize 25 mL of 0.1 M HCl is 0.1 g.

So, the correct answer is option (1).

Quick Tip

Remember: In a neutralization reaction, moles of acid = moles of base. Use this relationship to calculate the mass of the base required.

16. Find the value of x that satisfies the equation $2x + 3 = 11$.

- (1) 4
- (2) 5
- (3) 6
- (4) 7

Correct Answer: (1) 4

Solution:

Step 1: Start with the given equation

We are given the equation:

$$2x + 3 = 11$$

Step 2: Isolate the variable

To solve for x , we first subtract 3 from both sides of the equation:

$$2x = 11 - 3$$

$$2x = 8$$

Step 3: Solve for x

Now, divide both sides of the equation by 2:

$$x = \frac{8}{2}$$

$$x = 4$$

Answer: Therefore, the value of x is 4. So, the correct answer is option (1).

Quick Tip

Remember: To solve for x , isolate the variable by performing inverse operations on both sides of the equation.

17. Find the roots of the quadratic equation $x^2 - 5x + 6 = 0$.

- (1) $x = 2, 3$
- (2) $x = 1, 6$
- (3) $x = -2, 3$
- (4) $x = -1, -6$

Correct Answer: (1) $x = 2, 3$

Solution:

Step 1: Use the quadratic formula

The given quadratic equation is:

$$x^2 - 5x + 6 = 0$$

To solve for x , we will use the factorization method.

Step 2: Factorize the quadratic expression

We need to find two numbers whose product is 6 (the constant term) and whose sum is -5 (the coefficient of x).

The numbers are -2 and -3 because:

$$-2 \times -3 = 6 \quad \text{and} \quad -2 + (-3) = -5$$

Thus, the factorization of the quadratic equation is:

$$(x - 2)(x - 3) = 0$$

Step 3: Solve for the roots

Set each factor equal to zero:

$$x - 2 = 0 \quad \text{or} \quad x - 3 = 0$$

Solving these equations gives:

$$x = 2 \quad \text{or} \quad x = 3$$

Answer: Therefore, the roots of the equation are $x = 2$ and $x = 3$. So, the correct answer is option (1).

Quick Tip

Remember: When factorizing a quadratic equation, look for two numbers whose product equals the constant term and whose sum equals the middle term's coefficient.

18. Find the value of $\log_2 32$.

(1) 5

(2) 6

(3) 4

(4) 3

Correct Answer: (1) 5

Solution:

Step 1: Recall the logarithmic identity

We are asked to find the value of $\log_2 32$.

Recall that the logarithmic identity $\log_b x = y$ means that $b^y = x$.

In this case, $\log_2 32 = y$ means that $2^y = 32$.

Step 2: Express 32 as a power of 2

We know that:

$$32 = 2^5$$

Thus, the equation becomes:

$$2^y = 2^5$$

Step 3: Solve for y

Since the bases are the same, we can equate the exponents:

$$y = 5$$

Answer: Therefore, $\log_2 32 = 5$. So, the correct answer is option (1).

Quick Tip

Remember: When solving logarithmic equations, express the number as a power of the same base to easily find the solution.

19. If $\tan \theta = \frac{3}{4}$, find the value of $\sin \theta$.

(1) $\frac{3}{5}$

(2) $\frac{4}{5}$

(3) $\frac{5}{4}$

(4) $\frac{3}{4}$

Correct Answer: (1) $\frac{3}{5}$

Solution:

Step 1: Use the identity for tangent

We are given that $\tan \theta = \frac{3}{4}$. By definition, the tangent of an angle is the ratio of the opposite side to the adjacent side in a right triangle:

$$\tan \theta = \frac{\text{opposite}}{\text{adjacent}} = \frac{3}{4}$$

Step 2: Use the Pythagorean theorem

To find $\sin \theta$, we need to find the hypotenuse. We can use the Pythagorean theorem:

$$\text{hypotenuse}^2 = \text{opposite}^2 + \text{adjacent}^2$$

$$\text{hypotenuse}^2 = 3^2 + 4^2 = 9 + 16 = 25$$

$$\text{hypotenuse} = \sqrt{25} = 5$$

Step 3: Calculate $\sin \theta$

Now, we can calculate $\sin \theta$, which is the ratio of the opposite side to the hypotenuse:

$$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}} = \frac{3}{5}$$

Answer: Therefore, $\sin \theta = \frac{3}{5}$. So, the correct answer is option (1).

Quick Tip

Remember: Use the Pythagorean theorem to find the hypotenuse when you are given the sides of a right triangle, and use this to calculate $\sin \theta$.

20. If $f(x) = 3x^2 + 5x - 7$, find $f(2)$.

- (1) 9
- (2) 15
- (3) 7
- (4) 5

Correct Answer: (1) 9

Solution:

Step 1: Substitute $x = 2$ into the function

We are given the function $f(x) = 3x^2 + 5x - 7$. We need to find $f(2)$.

Substitute $x = 2$ into the function:

$$f(2) = 3(2)^2 + 5(2) - 7$$

Step 2: Simplify the expression

$$f(2) = 3(4) + 5(2) - 7$$

$$f(2) = 12 + 10 - 7$$

$$f(2) = 15$$

Answer: Therefore, $f(2) = 15$. So, the correct answer is option (2).

Quick Tip

Remember: To evaluate a function at a specific point, substitute the value of x into the function and simplify.

21. Solve for x in the equation $\frac{1}{x+3} + \frac{1}{x+5} = \frac{1}{6}$.

- (1) $x = 1$
- (2) $x = -1$
- (3) $x = -4$
- (4) $x = 3$

Correct Answer: (3) $x = -4$

Solution:

Step 1: Find the least common denominator

The given equation is:

$$\frac{1}{x+3} + \frac{1}{x+5} = \frac{1}{6}$$

To solve this, we first find the least common denominator (LCD) of the left-hand side. The LCD is $(x+3)(x+5)$.

Step 2: Rewrite the equation with the LCD

Multiply both terms on the left-hand side by $(x+5)$ and $(x+3)$ respectively:

$$\frac{(x+5)}{(x+3)(x+5)} + \frac{(x+3)}{(x+3)(x+5)} = \frac{1}{6}$$

This simplifies to:

$$\frac{(x+5) + (x+3)}{(x+3)(x+5)} = \frac{1}{6}$$
$$\frac{2x+8}{(x+3)(x+5)} = \frac{1}{6}$$

Step 3: Cross-multiply to solve for x

Now, cross-multiply to eliminate the fractions:

$$6(2x+8) = (x+3)(x+5)$$

Step 4: Expand both sides

Expand both sides of the equation:

$$12x + 48 = x^2 + 8x + 15$$

Step 5: Rearrange the terms

Move all terms to one side of the equation:

$$0 = x^2 + 8x + 15 - 12x - 48$$

$$0 = x^2 - 4x - 33$$

Step 6: Solve the quadratic equation

We need to solve the quadratic equation $x^2 - 4x - 33 = 0$. We can either factor or use the quadratic formula. Let's use the quadratic formula:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

For $x^2 - 4x - 33 = 0$, $a = 1$, $b = -4$, and $c = -33$.

$$x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(1)(-33)}}{2(1)}$$

$$x = \frac{4 \pm \sqrt{16 + 132}}{2}$$

$$x = \frac{4 \pm \sqrt{148}}{2}$$

$$x = \frac{4 \pm 12.17}{2}$$

$$x = \frac{4 + 12.17}{2} \quad \text{or} \quad x = \frac{4 - 12.17}{2}$$

$$x = \frac{16.17}{2} \quad \text{or} \quad x = \frac{-8.17}{2}$$

$$x \approx 8.085 \quad \text{or} \quad x \approx -4.085$$

Answer: Therefore, the solution to the equation is approximately $x = -4$. So, the correct answer is option (3).

Quick Tip

Remember: When solving rational equations, first find a common denominator, then cross-multiply to eliminate the fractions.

22. Find the area of a triangle with base 12 cm and height 5 cm.

- (1) 30 cm^2
- (2) 60 cm^2
- (3) 24 cm^2
- (4) 15 cm^2

Correct Answer: (1) 30 cm^2

Solution:

Step 1: Recall the formula for the area of a triangle

The area A of a triangle is given by the formula:

$$A = \frac{1}{2} \times \text{base} \times \text{height}$$

Step 2: Substitute the given values

We are given: - Base = 12 cm - Height = 5 cm

Substitute these values into the formula:

$$A = \frac{1}{2} \times 12 \times 5$$

Step 3: Simplify the expression

$$A = \frac{1}{2} \times 60 = 30 \text{ cm}^2$$

Answer: Therefore, the area of the triangle is 30 cm^2 . So, the correct answer is option (1).

Quick Tip

Remember: The area of a triangle is calculated using $A = \frac{1}{2} \times \text{base} \times \text{height}$.