Telangana SSC (Class 10)

MATHEMATICS

Chapter-wise Important Questions

Multiple Choice Questions (1 mark) | Short Answer Questions (2–4 marks) | Long Answer / Big Questions (4–8 marks)

This booklet covers all 14 chapters of the Telangana SCERT Class 10 Mathematics textbook and is meant for quick revision before SSC public examinations. MCQ answer keys are given at the end of each chapter's MCQ section.

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Chapter 1: Real Numbers

A. Multiple Choice Questions (MCQ)

1. Euclid's division lemma states that for positive integers a and b, there exist unique integers q and r such that a = bq + r, where

   (a) $0 < r < b$ (b) $0 \le r < b$ (c) $0 < r \le b$ (d) $0 \le r \le b$

2. The HCF of 96 and 404, obtained by prime factorisation, is

   (a) 2 (b) 4 (c) 8 (d) 16

3. The decimal expansion of 17/8 terminates after how many decimal places?

   (a) 1 (b) 2 (c) 3 (d) 4

4. $\sqrt{2}$ is a/an

   (a) Rational number (b) Irrational number (c) Integer (d) Natural number

5. If a and b are co-prime numbers, then LCM(a, b) is

   (a) 1 (b) a + b (c) ab (d) a/b

6. HCF(a, b) × LCM(a, b) =

   (a) a – b (b) a + b (c) a × b (d) a / b

Answer Key: 1-b, 2-b, 3-c, 4-b, 5-c, 6-c

B. Short Answer Questions

1. Prove that $\sqrt{3}$ is an irrational number.

2. Find the HCF and LCM of 6, 72 and 120 using the prime factorisation method.

3. Show that any positive odd integer is of the form 6q + 1, 6q + 3 or 6q + 5, where q is some integer.

4. Without actual division, state whether $129 / (2^2 \times 5^7 \times 7^5)$ has a terminating or a non-terminating repeating decimal expansion. Justify your answer.

C. Long Answer / Big Questions

1. Use Euclid's division algorithm to find the HCF of 4052 and 12576.

2. Prove that $\sqrt{5}$ is an irrational number.

3. Three bells ring at intervals of 6, 12 and 18 minutes respectively. If they start ringing together, after how much time will they next ring together? Explain using the LCM method with full working.

Chapter 2: Sets

A. Multiple Choice Questions (MCQ)

1. If A = {1, 2, 3}, the number of subsets of A is

   (a) 6 (b) 7 (c) 8 (d) 9

2. The empty set is denoted by

   (a) {0} (b) ϕ (c) Both { } and ϕ (d) 0

3. If $A \cap B = \phi$, then A and B are called

   (a) Equal sets (b) Equivalent sets (c) Disjoint sets (d) Singleton sets

4. The set {x : x is a natural number, x < 1} is

   (a) A singleton set (b) A null set (c) An infinite set (d) None of these

5. If A = {a, e, i, o, u} and B = {a, b, c}, then A – B is

   (a) {e, i, o, u} (b) {a} (c) {a, e, i, o, u, b, c} (d) ϕ

6. $n(A \cup B) = n(A) + n(B) – n(A \cap B)$ is used to find

   (a) De Morgan's law (b) The distributive law (c) The number of elements in the union of two sets (d) The associative law

Answer Key: 1-c, 2-c, 3-c, 4-b, 5-a, 6-c

B. Short Answer Questions

1. If A = {1, 2, 3, 4} and B = {2, 4, 6, 8}, find $A \cup B$ and $A \cap B$.

2. Write the set A = {1, 4, 9, 16, 25} in set-builder form.

3. If n(A) = 20, n(B) = 30 and $n(A \cup B) = 40$, find $n(A \cap B)$.

4. Verify De Morgan's law $(A \cup B)' = A' \cap B'$ by taking suitable example sets.

C. Long Answer / Big Questions

1. In a class of 50 students, 30 like Mathematics, 25 like Science and 10 like both subjects. Using a Venn diagram, find the number of students who like at least one of the two subjects and the number who like neither.

2. Draw Venn diagrams to illustrate $A \cup B$, $A \cap B$, $A – B$ and $B – A$ for two overlapping sets A and B, shading the required region in each case.

3. If U = {1, 2, 3, ..., 10}, A = {2, 4, 6, 8, 10} and B = {1, 3, 5, 7, 9, 10}, verify that $(A \cup B)' = A' \cap B'$.

Chapter 3: Polynomials

A. Multiple Choice Questions (MCQ)

1. The degree of the polynomial $p(x) = 3x^4 – 2x^2 + 5$ is

   (a) 2 (b) 3 (c) 4 (d) 5

2. The zeroes of the polynomial $x^2 – 3x – 4$ are

   (a) 4, –1 (b) –4, 1 (c) 4, 1 (d) –4, –1

3. If α, β are the zeroes of $ax^2 + bx + c$, then $\alpha + \beta$ =

   (a) b/a (b) –b/a (c) c/a (d) –c/a

4. The maximum number of zeroes a cubic polynomial can have is

   (a) 1 (b) 2 (c) 3 (d) 4

5. If one zero of $x^2 – 4x + k$ is 3, then the value of k is

   (a) 3 (b) 1 (c) –3 (d) 4

Answer Key: 1-c, 2-a, 3-b, 4-c, 5-a

B. Short Answer Questions

1. Find the zeroes of the polynomial $x^2 – 2x – 8$ and verify the relationship between the zeroes and the coefficients.

2. If α, β are the zeroes of $f(x) = x^2 – 5x + 6$, find the value of $\alpha^2 + \beta^2$.

3. Divide $3x^3 + x^2 + 2x + 5$ by $1 + 2x + x^2$ and find the quotient and remainder.

4. Find a quadratic polynomial whose sum and product of zeroes are 1/4 and –1 respectively.

C. Long Answer / Big Questions

1. Obtain all the zeroes of $3x^4 + 6x^3 – 2x^2 – 10x – 5$, if two of its zeroes are $\sqrt{(5/3)}$ and $–\sqrt{(5/3)}$.

2. If the zeroes of the polynomial $x^3 – 3x^2 + x + 1$ are a – b, a, a + b, find the values of a and b.

3. Verify the division algorithm for polynomials $p(x) = x^3 – 3x^2 + 5x – 3$ and $g(x) = x^2 – 2$.

Chapter 4: Pair of Linear Equations in Two Variables

A. Multiple Choice Questions (MCQ)

1. The pair of linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ has a unique solution when

   (a) $a_1/a_2 = b_1/b_2$ (b) $a_1/a_2 \neq b_1/b_2$ (c) $a_1/a_2 = b_1/b_2 = c_1/c_2$ (d) $a_1/a_2 = b_1/b_2 \neq c_1/c_2$

2. The graph of a linear equation in two variables is always a

   (a) Point (b) Straight line (c) Curve (d) Circle

3. If the lines representing a pair of linear equations are coincident, the system has

   (a) A unique solution (b) No solution (c) Infinitely many solutions (d) Exactly two solutions

4. The pair of equations $2x + 3y = 7$ and $4x + 6y = 14$ represents lines that are

   (a) Intersecting (b) Parallel (c) Coincident (d) Perpendicular

5. If the pair of equations $kx + 2y = 5$ and $3x + y = 1$ has a unique solution, then

   (a) $k = 6$ (b) $k \neq 6$ (c) $k = 3$ (d) $k \neq 3$

Answer Key: 1-b, 2-b, 3-c, 4-c, 5-b

B. Short Answer Questions

1. Solve by the substitution method: $x + y = 14$, $x – y = 4$.

2. Solve by the elimination method: $3x + 2y = 11$, $2x + 3y = 4$.

3. For what value of k does the pair of equations $kx + 2y = 5$, $3x + y = 1$ have a unique solution?

4. Check graphically whether the pair of equations $x – 2y = 0$, $3x + 4y = 20$ is consistent, and find the solution.

C. Long Answer / Big Questions

1. The sum of the digits of a two-digit number is 9. Also, nine times this number is twice the number obtained by reversing the order of its digits. Find the number.

2. 5 pens and 6 pencils together cost Rs. 9, and 3 pens and 2 pencils together cost Rs. 5. Form the pair of linear equations and find the cost of each pen and each pencil.

3. Solve graphically: $2x + y = 6$, $2x – y = 2$. Shade the triangular region formed by these lines with the x-axis and find its vertices.

Chapter 5: Quadratic Equations

A. Multiple Choice Questions (MCQ)

1. The standard form of a quadratic equation is

   (a) $ax + b = 0$ (b) $ax^2 + bx + c = 0, a \neq 0$ (c) $ax^3 + bx^2 + cx + d = 0$ (d) $ax^2 + b = 0$

2. The discriminant of $ax^2 + bx + c = 0$ is

   (a) $b^2 - 4ac$ (b) $b^2 + 4ac$ (c) $4ac - b^2$ (d) $a^2 - 4bc$

3. The roots of $x^2 - 5x + 6 = 0$ are

   (a) 2, 3 (b) –2, –3 (c) 2, –3 (d) –2, 3

4. If the discriminant of a quadratic equation is negative, the roots are

   (a) Real and equal (b) Real and unequal (c) Not real (d) Rational

5. For a quadratic equation to have equal roots, the discriminant must be

   (a) Greater than 0 (b) Less than 0 (c) Equal to 0 (d) Greater than or equal to 0

Answer Key: 1-b, 2-a, 3-a, 4-c, 5-c

B. Short Answer Questions

1. Solve by factorisation: $2x^2 - 5x + 3 = 0$.

2. Find the nature of the roots of $2x^2 - 6x + 3 = 0$ without solving the equation.

3. Solve $x^2 - 4x + 1 = 0$ using the quadratic formula.

4. Find the value of k so that $x^2 - 2x + k = 0$ has equal roots.

C. Long Answer / Big Questions

1. The sum of the squares of two consecutive positive integers is 365. Form a quadratic equation and find the integers.

2. A train travels 360 km at a uniform speed. If the speed had been 5 km/h more, it would have taken 1 hour less for the same journey. Find the speed of the train.

3. Solve for x using the quadratic formula: $4x^2 + 4bx + (b^2 - a^2) = 0$.

Chapter 6: Progressions

A. Multiple Choice Questions (MCQ)

1. The common difference of the AP 3, 7, 11, 15, ... is

   (a) 3 (b) 4 (c) 7 (d) 11

2. The nth term of an AP is given by

   (a) a + (n–1)d (b) a + nd (c) a – (n–1)d (d) na

3. The sum of the first n natural numbers is

   (a) n(n+1) (b) n(n+1)/2 (c) $n^2/2$ (d) n(n–1)/2

4. In a GP with a = 2 and r = 3, the 4th term is

   (a) 18 (b) 27 (c) 54 (d) 16

5. Which of the following is an AP?

   (a) 1, 3, 9, 27 (b) 2, 4, 8, 16 (c) 1, 4, 7, 10 (d) 1, 1, 2, 3

Answer Key: 1-b, 2-a, 3-b, 4-c, 5-c

B. Short Answer Questions

1. Find the 10th term of the AP: 2, 7, 12, 17, ...

2. Find the sum of the first 15 terms of an AP whose first term is 3 and common difference is 4.

3. Which term of the AP 21, 18, 15, ... is –81?

4. Find the sum: 3 + 11 + 19 + ... + 803.

C. Long Answer / Big Questions

1. The sum of the first 7 terms of an AP is 49 and the sum of the first 17 terms is 289. Find the sum of the first n terms of the AP.

2. If the 3rd and 9th terms of an AP are 4 and –8 respectively, find which term of the AP is zero.

3. A sum of Rs. 1000 is invested at a simple interest of 8% per annum. Show that the interests earned at the end of each year form an AP, and find the interest earned at the end of 30 years.

Chapter 7: Coordinate Geometry

A. Multiple Choice Questions (MCQ)

1. The distance between the points (0, 0) and (3, 4) is

   (a) 3 (b) 4 (c) 5 (d) 7

2. The midpoint of the line segment joining (2, 3) and (4, 7) is

   (a) (3, 5) (b) (6, 10) (c) (1, 2) (d) (2, 4)

3. The point which divides the segment joining (1, 3) and (2, 7) in the ratio 3:4 lies

   (a) Inside the segment (b) Outside the segment (c) On the extension of the segment (d) Cannot be determined

4. The area of the triangle with vertices (0, 0), (4, 0), (0, 3) is

   (a) 6 (b) 12 (c) 7 (d) 3.5

5. The points (1, 1), (2, 2), (3, 3) are

   (a) Vertices of a triangle (b) Collinear (c) Forming a square (d) None of these

Answer Key: 1-c, 2-a, 3-a, 4-a, 5-b

B. Short Answer Questions

1. Find the distance between the points (2, 3) and (4, 1).

2. Find the coordinates of the point which divides the line segment joining (–1, 7) and (4, –3) in the ratio 2:3.

3. Find the value of k, if the points (7, –2), (5, 1), (3, k) are collinear.

4. Find the area of the triangle whose vertices are (1, –1), (–4, 6), (–3, –5).

C. Long Answer / Big Questions

1. Find the ratio in which the y-axis divides the line segment joining the points (5, –6) and (–1, –4). Also find the point of intersection.

2. Show that the points (–4, –1), (–2, –4), (4, 0), (2, 3) are the vertices of a rectangle.

3. Find the coordinates of the points of trisection of the line segment joining (4, –1) and (–2, –3).

Chapter 8: Similar Triangles

A. Multiple Choice Questions (MCQ)

1. In similar triangles, the corresponding sides are

   (a) Equal (b) Proportional (c) Parallel (d) Perpendicular

2. The Basic Proportionality Theorem is also known as

   (a) Pythagoras theorem (b) Thales theorem (c) Mid-point theorem (d) Converse theorem

3. If Triangle ABC ~ Triangle PQR and AB/PQ = 3/5, the ratio of their areas is

   (a) 3/5 (b) 9/25 (c) 6/10 (d) 5/3

4. In a right triangle, the square of the hypotenuse equals

   (a) The sum of squares of the other two sides (b) The product of the other two sides (c) The difference of squares of the other two sides (d) The sum of the other two sides

5. Two triangles are similar if their corresponding angles are

   (a) Equal (b) Supplementary (c) Complementary (d) Unequal

Answer Key: 1-b, 2-b, 3-b, 4-a, 5-a

B. Short Answer Questions

1. State the Basic Proportionality Theorem (Thales theorem).

2. In Triangle ABC, DE || BC, AD = 2 cm, DB = 3 cm, AE = 3 cm. Find EC.

3. The sides of a triangle are 7 cm, 24 cm and 25 cm. Check whether it is a right triangle.

4. Triangle ABC ~ Triangle DEF. If area(Triangle ABC) = 64 cm^2, area(Triangle DEF) = 121 cm^2 and AB = 8 cm, find DE.

C. Long Answer / Big Questions

1. Prove that the ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides.

2. State and prove the Pythagoras theorem.

3. Prove that, in a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides, using the concept of similarity of triangles.

Chapter 9: Tangents and Secants to a Circle

A. Multiple Choice Questions (MCQ)

1. A tangent to a circle touches it at

   (a) Two points (b) One point (c) No point (d) Infinite points

2. The tangent at any point of a circle is _____ to the radius through the point of contact.

   (a) Parallel (b) Perpendicular (c) Equal (d) None of these

3. The number of tangents that can be drawn from an external point to a circle is

   (a) 1 (b) 2 (c) 3 (d) 0

4. The lengths of tangents drawn from an external point to a circle are

   (a) Equal (b) Unequal (c) Parallel (d) Perpendicular

5. If the angle between two tangents drawn from an external point is 60°, the angle between the corresponding radii is

   (a) 60° (b) 90° (c) 120° (d) 180°

Answer Key: 1-b, 2-b, 3-b, 4-a, 5-c

B. Short Answer Questions

1. Prove that the lengths of tangents drawn from an external point to a circle are equal.

2. A tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q so that OQ = 12 cm. Find the length PQ.

3. Two concentric circles have radii 5 cm and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle.

4. Write the steps of construction to draw a pair of tangents to a circle from an external point.

C. Long Answer / Big Questions

1. Prove that the tangent at any point of a circle is perpendicular to the radius through the point of contact.

2. Construct a triangle similar to a given triangle ABC with scale factor 3/4, and justify the construction.

3. Construct a pair of tangents to a circle of radius 4 cm from a point 9 cm away from its centre. Measure and verify the lengths of the tangents.

Chapter 10: Mensuration

A. Multiple Choice Questions (MCQ)

1. The volume of a cylinder of radius r and height h is

   (a) $\pi r^2 h$ (b) $2\pi rh$ (c) $\pi r^2 l$ (d) $(4/3)\pi r^3$

2. The curved surface area of a cone of radius r and slant height l is

   (a) πrl (b) $\pi r^2 l$ (c) $2\pi rh$ (d) $\pi r(r + l)$

3. The volume of a sphere of radius r is

   (a) $4\pi r^2$ (b) $(4/3)\pi r^3$ (c) πr^3 (d) $(2/3)\pi r^3$

4. When a solid cone is cut by a plane parallel to its base, the part between the cutting plane and the base is called a

   (a) Cylinder (b) Frustum (c) Hemisphere (d) Prism

5. The total surface area of a hemisphere of radius r is

   (a) $2\pi r^2$ (b) $3\pi r^2$ (c) $4\pi r^2$ (d) πr^2

Answer Key: 1-a, 2-a, 3-b, 4-b, 5-b

B. Short Answer Questions

1. Find the volume of a cone of radius 7 cm and height 24 cm.

2. A cylinder and a cone have the same base radius and the same height. Find the ratio of their volumes.

3. Find the curved surface area of a sphere of diameter 14 cm.

4. Find the volume of a frustum of a cone whose circular ends have radii 14 cm and 7 cm, and height 12 cm.

C. Long Answer / Big Questions

1. A solid is in the shape of a cone mounted on a hemisphere of the same radius. If the radius is 7 cm and the height of the cone is 24 cm, find the volume of the solid.

2. A bucket is in the form of a frustum of a cone with top and bottom radii 20 cm and 12 cm and height 24 cm. Find its capacity and its curved surface area.

3. A medicine capsule is in the shape of a cylinder with two hemispheres stuck to each end. If the total length of the capsule is 14 mm and its diameter is 5 mm, find its volume.

Chapter 11: Trigonometry

A. Multiple Choice Questions (MCQ)

1. The value of sin 30° is

   (a) 1/2 (b) √3/2 (c) 1 (d) 0

2. $\sin^2\theta + \cos^2\theta$ =

   (a) 0 (b) 1 (c) 2 (d) –1

3. The value of tan 45° is

   (a) 0 (b) 1 (c) √3 (d) Undefined

4. $1 + \tan^2\theta$ =

   (a) $\sin^2\theta$ (b) $\cos^2\theta$ (c) $\sec^2\theta$ (d) $\operatorname{cosec}^2\theta$

5. The value of cos 90° is

   (a) 1 (b) 0 (c) –1 (d) Undefined

Answer Key: 1-a, 2-b, 3-b, 4-c, 5-b

B. Short Answer Questions

1. Evaluate: $2\tan^2 45° + \cos^2 30° – \sin^2 60°$.

2. Prove that $(1 – \cos\theta)(1 + \cos\theta) = \sin^2\theta$.

3. If sin A = 3/5, find the values of cos A and tan A (A is an acute angle).

4. Prove that $\sin\theta/(1 + \cos\theta) + (1 + \cos\theta)/\sin\theta = 2\operatorname{cosec}\theta$.

C. Long Answer / Big Questions

1. Prove that $(\sin A + \operatorname{cosec} A)^2 + (\cos A + \sec A)^2 = 7 + \tan^2 A + \cot^2 A$.

2. Prove that $\cos A/(1 + \sin A) + (1 + \sin A)/\cos A = 2\sec A$.

3. If $\tan\theta + \sin\theta = m$ and $\tan\theta – \sin\theta = n$, show that $m^2 – n^2 = 4\sqrt{(mn)}$.

Chapter 12: Applications of Trigonometry

A. Multiple Choice Questions (MCQ)

1. The angle of elevation of an object increases as we

   (a) Move away from the object (b) Move towards the object (c) Stay still (d) None of these

2. If the angle of elevation of the sun is 45°, the length of the shadow of an object equals

   (a) The height of the object (b) Half the height of the object (c) Twice the height of the object (d) Cannot say

3. The angle of depression is measured from

   (a) The horizontal line at the observer's eye (b) The ground (c) A vertical line (d) The object

4. From the top of a tower, the angle of depression of a car is 30°. The angle of elevation of the top of the tower from the car is

   (a) 30° (b) 60° (c) 90° (d) 45°

5. If θ is the angle of elevation, then $\tan\theta$ =

   (a) Height / Distance (b) Distance / Height (c) Height × Distance (d) Height + Distance

Answer Key: 1-b, 2-a, 3-a, 4-a, 5-a

B. Short Answer Questions

1. A pole 6 m high casts a shadow $2\sqrt{3}$ m long. Find the angle of elevation of the sun.

2. The angle of elevation of the top of a tower from a point on the ground 30 m away from its foot is 30°. Find the height of the tower.

3. From a point 20 m away from the base of a building, the angle of elevation of its top is 60°. Find the height of the building.

4. A ladder 15 m long makes an angle of 60° with the wall. Find the height it reaches on the wall.

C. Long Answer / Big Questions

1. From the top of a building 7 m high, the angle of elevation of the top of a cable tower is 60° and the angle of depression of its foot is 45°. Find the height of the tower.

2. Two poles of equal height stand on either side of a road 80 m wide. From a point between them on the road, the angles of elevation of the tops of the poles are 60° and 30°. Find the height of the poles and the distances of the point from the poles.

3. A boy standing on level ground finds a bird flying at a distance of 100 m at an angle of elevation of 30°. A girl standing on the roof of a 20 m high building finds the angle of elevation of the same bird to be 45°. Both the boy and girl are on opposite sides of the bird. Find the distance of the bird from the girl.

Chapter 13: Probability

A. Multiple Choice Questions (MCQ)

1. The probability of an event always lies between

   (a) –1 and 1 (b) 0 and 1 (c) 0 and 100 (d) 1 and 10

2. The probability of a sure event is

   (a) 0 (b) 1 (c) 0.5 (d) –1

3. The probability of getting a head when a coin is tossed once is

   (a) 1 (b) 0 (c) 1/2 (d) 2

4. When two dice are thrown together, the total number of possible outcomes is

   (a) 6 (b) 12 (c) 36 (d) 18

5. P(E) + P(not E) =

   (a) 0 (b) 1 (c) 2 (d) –1

Answer Key: 1-b, 2-b, 3-c, 4-c, 5-b

B. Short Answer Questions

1. A die is thrown once. Find the probability of getting (i) a prime number, (ii) a number greater than 4.

2. A card is drawn at random from a well-shuffled deck of 52 playing cards. Find the probability that it is a face card.

3. Two coins are tossed simultaneously. Find the probability of getting exactly one head.

4. A bag contains 5 red, 4 blue and 3 green balls. A ball is drawn at random. Find the probability that it is red or blue.

C. Long Answer / Big Questions

1. A box contains 12 balls, out of which x are black. If one ball is drawn at random from the box, the probability that it is black is p. If 6 more black balls are put in the box, the probability of drawing a black ball becomes double of p. Find x.

2. Two dice are thrown simultaneously. Find the probability that (i) the sum of the numbers is 8, (ii) the sum is a prime number, (iii) the product of the numbers is 12.

3. Cards numbered 1 to 40 are put in a box and mixed thoroughly. One card is drawn at random. Find the probability that the number on it is (i) a perfect square, (ii) divisible by 5, (iii) a prime number.

Chapter 14: Statistics

A. Multiple Choice Questions (MCQ)

1. The mean of the first 5 natural numbers is

   (a) 2 (b) 3 (c) 4 (d) 5

2. The mode of a data set is the value that

   (a) Occurs most frequently (b) Occurs least frequently (c) Is the middle value (d) Is the average of all values

3. The median of grouped data is found using

   (a) The mean formula (b) The mode formula (c) Cumulative frequency (d) The range

4. The measure of central tendency most affected by extreme values is

   (a) Mean (b) Median (c) Mode (d) None of these

5. The empirical relationship between mean, median and mode is

   (a) Mode = 3 Median – 2 Mean (b) Mean = 3 Median – 2 Mode (c) Median = 3 Mode – 2 Mean (d) Mode = 2 Median – 3 Mean

Answer Key: 1-b, 2-a, 3-c, 4-a, 5-a

B. Short Answer Questions

1. Find the mean of the data 10, 20, 30, 40, 50 occurring with frequencies 2, 3, 5, 4, 1 respectively, using the direct method.

2. Define mode and write the formula used to find the mode of grouped data.

3. Explain how the median class of a grouped frequency distribution is identified using the cumulative frequency column.

4. What is an ogive? State its two types.

C. Long Answer / Big Questions

1. Calculate the mean of a given grouped frequency distribution using the step-deviation method (take a suitable class-interval table of your textbook and show all steps).

2. The marks obtained by 100 students in an examination are given in a grouped frequency table. Find the median marks using the cumulative frequency method, and verify graphically using an ogive.

3. For a grouped frequency distribution table, find the mean, median and mode, and verify the empirical relationship Mode = 3 Median – 2 Mean.