AP SSC : 2025-26 : MATHEMATICS MATERIAL (FOR D-GRADE STUDENTS).

MOST EXPECTED EXAM ORIENTED 2 MARK QUESTIONS.

ZPHS CHANDRAGUDEM MYLAVARAM MANDAL NTR DT.

Prepared By: BANOTHU SURYA ; M.Sc ; B.Ed , S.A (MATHS) , CELL-9490931275.

Q.NO-13: POLYNOMIALS (CREATION) – 2 MARKS.

VARIOUS MODEL PAPERS-EXAM ORIENTED 2 MARK QUESTIONS–COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM NTR Dt-9490931275.

1. Create a quadratic polynomial whose sum and product of zeroes are 3 and -2. (**2025 SCERT MP-2**)&(**2025 SA MP-1**)&(**UTF MP-4**)&(**VGS PP-1**)&(**STU**)&(**DPRTU MP-1**)&(**PFE-2026**).

2. Create a quadratic polynomial whose sum and product of zeroes are -3 and 2 respectively. (**2025 SA MP-1**)&(**100 DAP MP-1**)&(**UTF MP-1**)&(**VGS MP-8**)&(**BY SURYA SIR**).

3. Create a quadratic polynomial whose sum and product of zeroes are equal to each other (**2025 SCERT MP-1)**&(**UTF MP-2**)&(**VGS PP-2**)&(**BY SURYA SIR**).

4. Create a quadratic polynomial whose sum and product of zeros are 1/4 and −1 respectively. (**100 DAP MP-2**)&(**MP-11**)&(**DPRTU MP-2**)&(**2026 GT)**.

5. Create a quadratic polynomial whose sum and product of zeroes are 0 and $\sqrt{3}$.? respectively ? (**100 DAP MP-3**)&(**DPRTU MP-3**).

6. Generate a quadratic polynomial whose sum and product of zeroes are 1/4 , 1.(**100 DAP**)&(**VGS MP-6**).

7. Create a quadratic polynomial whose sum and product of zeroes are $\sqrt{3}$ and $-\sqrt{3}$. (**100 DAP**).

Q.NO-14: QUADRATIC EQUATIONS (ANALYSIS) – 2 MARKS.

VARIOUS MODEL PAPERS-EXAM ORIENTED 2 MARK QUESTIONS–COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM NTR Dt-9490931275.

1. Find the value of k, if both the roots of $2x^2 + kx + 3 = 0$ are equal? (**2025 SCERT MP-1)&(100 DAP MP-3)&(UTF MP-4)&(100 DAP)&(GD)&(DPRTU MP-3)&(BY SURYA SIR**).

2. Find the nature of roots of $2x^2 + 3x + 5 = 0$. (**100 DAP MP-2)&(100 DAP)&(DPRTU MP-2**).

3. Give the nature of roots of quadratic equation $2x^2 - 5x + 1 = 0$. (**2025 SCERT MP-2**)&(**GD**).

Q.NO-15: TRIANGLES (KNOWLEDGE) – 2 MARKS.

VARIOUS MODEL PAPERS–EXAM ORIENTED 2 MARK QUESTIONS–COMPILED BY BANOTHU SURYA SIR–ZPHS CHANDRAGUDEM MYLAVARAM NTR Dt-9490931275.

1. State SAS Criterion in Similarities of triangles? (**2025 SCERT MP-1**)&(**100 DAP MP-1**)&(**100 DAP**)&(**UTF MP-1**)&(**GD**)&(**VGS MP-3**)&(**VGS PP-2**)&(**DPRTU MP-1**)&(**BY SURYA SIR**)&(**PFE-2026)**.

2. Give two different Examples of Pair of (i) Similar figures (ii) Non – Similar figures iii) Congruent figures ? (**2025 SCERT MP-2**)&(**100 DAP MP-2**)&(**100 DAP**)&(**GD**)&(**DPRTU MP-2**)&(**BY SURYA SIR**).

3. What are conditions for the similarity of Triangles?(**100 DAP**)&(**DPRTU MP-3**)

(**OR**) When the two triangles are Similar ? (**100 DAP MP-3**)&**(GT-2026)**.

(**OR**) Write the conditions for two polygons / two triangles to be similar.(**VGS MP-11**).

(**OR**) Define similar triangles.(**VGS MP-4**)&(**BY SURYA SIR**)

(**OR**) List the rules under which two triangles are similar.(**VGS PP-1**).

(**OR**) Write the properties of similar triangles. (**STU**).

4. State SSS Criterion in Similarities of triangles ? (**2025 SA TERM-1**)&(**100 DAP**)&(**GD MP-2**)&(**GD**)&(**VGS PP-3**)&(**STU**)&(**BY SURYA SIR**).

5. State Basic Proportionality theorem (Thales theorem) ? (**2025 SA MP-2**)&(**UTF MP-4**)&(**BY SURYA SIR**).

6. Define similar polygons? (**UTF MP-3**)&(**GD**).

(**OR**) When the two Polygons of the Same number of sides are Similar ?

Q.NO-16: INTRODUCTION TO TRIGONOMETRY (EVALUATION) – 2 MARKS.

VARIOUS MODEL PAPERS-EXAM ORIENTED 2 MARK QUESTIONS–COMPILED BY BANOTHU SURYA SIR–ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

1. If cot θ = 7/8 evaluate (1+sinθ)(1−sinθ) / (1+cosθ)(1−cosθ) ? (**2025 SCERT MP-1**)&(**100 DAP**)&(**GD)**&(**BY SURYA SIR**)&(**GT-2026)**.

2. If sec A = 13/12, then find values of sin A and cos A. **(100 DAP MP-2)&(DPRTU MP-2)&(100 DAP).**

3. If 15 cot A = 8, then determine sin A – sec A. **(100 DAP MP-3)&(DPRTU MP-3)&(STU)&(VGS MP-11**).

Q.NO-17: APPLICATIONS OF TRIGONOMETRY (KNOWLEDGE) – 2 MARKS.

VARIOUS MODEL PAPERS-EXAM ORIENTED 2 MARK QUESTIONS–COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM NTR Dt-9490931275.

1. Define angle of Elevation with a Simple rough diagram ? (**2025 SCERT MP-2**)&(**100 DAP MP-3**)&(**100 DAP**)&(**VGS MP-14**)&(**VGS PP-2**)&(**DPRTU MP-3**)&(**BY SURYA SIR**).

2. Define angle of Depression with a Simple rough diagram ? (**100 DAP MP-1**)&(**VGS MP-6**)& (**UTF MP-1**)&(**DPRTU MP-1**)&(**BY SURYA SIR**).

3. Name any two real life situations where trigonometry is used ? (**2025 SCERT MP-2**)&(**100 DAP**)& (**UTF MP-3**)&(**VGS PP-1**)&(**VGS MP-12**)&(**BY SURYA SIR**).

4. Define Line of Sight with a Simple rough diagram ? (**100 DAP**).

Q.NO-18: CIRCLES (KNOWLEDGE) – 2 MARKS.

VARIOUS MODEL PAPERS–EXAM ORIENTED 2 MARKS QUESTIONS–COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

1. 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 of PQ ? (**2025 SCERT MP-1**)&(**UTF MP-4**)&(**VGS MP-4**)&(**STU**)&(**VGS PP-2**)&(**BY SURYA SIR**)&(**PFE-2026**).

2. From a point Q, the length of the tangent to circle is 24 cm and the distance of Q from the Centre is 25 cm. Find the radius of the circle. (**100 DAP MP-1**)&(**VGS MP-12**)&(**DPRTU MP-1**)&(**BY SURYA SIR**)&(**GT-2026)**.

3. If TP and TQ are the two tangents to circle with centre O so that ∠POQ = 110°. Then find ∠PTQ. (**100 DAP MP-2**)&(**DPRTU MP-2**).

4. A parallelogram ABCD is drawn to circumscribe a circle then write the relation among its sides ? (**100 DAP MP-1**)&(**DPRTU MP-3**).

5. A Quadrilateral ABCD is drawn to circumscribe a circle then write the relation between its sides ? (**2025 SCERT MP-2**)&(**BY SURYA SIR**).

6. The length of the tangent from a point A at distance 5 cm from the centre of the circle is 4 cm. Find the radius of the circle. (**100 DAP**)&(**VGS MP-11**)&(**VGS PP-1**).

7. Define tangent of a circle and secant of a circle. (**100 DAP**).

8. What is the length of tangent drawn form a point 15 cm away from the center of a circle of radius 9 cm. (**UTF MP-1**)&(**VGS MP-7**)&(**BY SURYA SIR**).

Q.NO-19: SURFACE AREAS AND VOLUMES (UNDERSTANDING) – 2 MARKS.

VARIOUS MODEL PAPERS–EXAM ORIENTED 2 MARK QUESTIONS-COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

1. Find the volume of right circular cone of radius 6cm and height 7cm. (**100 DAP MP-2**)& (**GD**)&(**DPRTU MP-2**)&(**VGS MP-13**)&(**PFE-2026**).

2. Find the volume of largest circular cone that can be cut out of a cube of edge 7 cm ? (**2025 SCERT MP-1**)&(**GD**)&(**UTF MP-3**)&(**BY SURYA SIR**)&(**GT-2026)**.

3. The radius of a sphere is r cm. It is divided into two equal parts. Find the sum of the surface areas of 2 hemispheres. (**100 DAP MP-1**)&(**DPRTU MP-1**)&(**100 DAP**)&(**GD**).

4. Consider the following situations. In each find out whether you need volume or area and Why? (**100 DAP MP-3**)&(**GD**)&(**100 DAP**)&(**DPRTU MP-3**).

A) Quantity of water inside a bottle

B) Canvas needed for making a tent.

C) Number of bags inside the lorry.

D) Number of match sticks that can be put in the match box.

5. Find the volume of the solid given in the adjacent figure. (Diagram: A cone of height 10 cm and base diameter 12 cm.). (**2025 SCERT MP-2**)&(**GD**)&(**GD MP-1**).

Q.NO-20 : CO-ORDINATE GEOMETRY (KNOWLEDGE) – 2 MARKS.

VARIOUS MODEL PAPERS–EXAM ORIENTED 2 MARK QUESTIONS–COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

1. Find the co-ordinates of the point A, where AB is the diameter of a circle whose centre is (2, -3) and B is (1, 4). (**100 DAP**)&(**100 DAP MP-1**)&(**DPRTU MP-1**)&(**VGS PP-1**)&(**VGS PP-4**)&(**GD MP-2**)&(**STU**)&(**PFE-2026**).

2. (**i**). Write the formulae to find the distance between the two points (x_1, y_1) and (x_2, y_2). (**OR**) Distance Formula. (**2025 SCERT MP-1**)&(**100 DAP**)&(**GD**)&(**UTF MP-1**)&(**VGS PP-3**)&(**VGS MP-3**)&(**BY SURYA SIR**).

(**ii**). Write the formulae to find the distance between Origin **or** (0,0) and a point (x, y) ? (**2025 SCERT MP-1**)&(**100 DAP**)&(**GD**)&(**VGS PP-3**)&(**DCEB NTR ST**)&(**BY SURYA SIR**).

3. (**i**) Write the formulae to find the midpoint of the line segment joining the points P (x_1, y_1) and Q (x_2, y_2). (**OR**) Mid Point Formula. (**2025 SA TERM-1 MP**)&(**100 DAP**)&(**GD**)&(**VGS MP-3&7**)&(**100 DAP MP-2**)&(**DPRTU MP-2**).

(**ii**). In which ratio does the mid-point divides a line segment? (**100 DAP MP-2**)&(**DPRTU MP-2**).

4. Find the coordinates of the point which divides the line joining (–1, 7) and (4, –3) in the Ratio 2 : 3. (**100 DAP MP-3**)&(**100 DAP)**&(**UTF MP-3**)&(**DPRTU MP-3**)&(**STU**)&(**VGS MP-8**)&(**BY SURYA SIR**).

5. Find the Co-ordinates of mid-point of a line Segment joining the points (-2,-2) and (2,4) ? (**2025 SCERT MP-2**)&(**100 DAP**).

6. The midpoint of on the line joining the points (− 4, 2) and (4,−2) is (0, 2). (True/False). (**100 DAP)**.

7. Write the formula to find the coordinates of the point which divides the line segment joining the points (x_1, y_1) and (x_2, y_2) in the ratio $m_1 : m_2$. (**OR**) Section Formula. (**100 DAP**)&(**UTF MP-1)&(BY SURYA SIR)**.

8. Find the distance between the following pairs of points : (i) (2, 3), (4, 1) (ii) (-5, 7), (-1, 3) (iii) (a, b), (-a, -b) ?

9. Find the coordinates of the point which divides the line segment joining the points (4, -3) and (8, 5) in the ratio 3 : 1 internally ?

10. Define (i) Collinear points (ii) Point of trisection ?

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AP SSC : 2025-26 : MATHEMATICS MATERIAL (FOR D-GRADE STUDENTS).

MOST EXPECT EXAM ORIENTED 4 MARK QUESTIONS.

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Q.NO-21: PROBABILITY (CREATION) – 4 MARKS.

VARIOUS MODEL PAPERS–EXAM ORIENTED 4 MARK QUESTIONS–COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

1. One Card is drawn from a well-Shuffled deck of 52 Cards. Calculate the probability that the drawn card will be an ace ? Now Create 4 Such type of Questions ? (**2025 SCERT MP-1**)&(**VGS PP-4**)&**(GD)&(UTF MP-1)&(BY SURYA SIR**)&(**GT-2026**).

2. Suppose we throw a dice once. what is the probability for getting a number greater than 4 ? Now Create 4 Such type of Questions ? (**2025 SCERT MP-2**)&(**GD)&(BY SURYA SIR**).

3. One card is drawn from a well-shuffled deck of 52 cards. Create 4 questions based on this? Find the probability that the drawn card will be the king. (**100 DAP MP-1**)&(**DPRTU MP-1).**

4. Two dice are thrown at the same time. What is the probability that the sum of two numbers appearing on the top of the dice is 7? Now create 4 such type of questions. (**100 DAP MP-2**)&(**DPRTU MP-2**).

5. A dice is thrown once. Find the probability of getting a prime number. Now create 4 such types of questions. **(UTF MP-2)&(VGS MP-13)&(PFE-2026).**

6. A bag contains 3 yellow balls, 6 green balls, 4 red balls and 2 white balls. One ball is taken out of the bag at random. What is the probability that the ball take out will be red ball? Now create 4 such type of questions. (**100 DAP MP-3**)&(**100 DAP)&(DPRTU MP-3**).

Q.NO-22: STATISTICS (UNDERSTANDING)– 4 MARKS.

VARIOUS MODEL PAPERS–EXAM ORIENTED 4 MARK QUESTIONS–COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

1. Write the formula to find mode of a grouped data & explain the terms in it ? **(2025 SCERT MP-2**) & (**100 DAP MP-1**)& (**2025 SA TERM-1 MP**)&(**VGS MP-3&5&8&14&PP-1&3**)&(**UTF MP-2**)&(**DPRTU MP-1**).

2. Write the formula to find median of a grouped data & explain the terms in it ? (**2025 SCERT MP-1**) & (**2025 SA MP-2**) & (**100 DAP MP-2**)&(**VGS MP-4&9&13&PP-2**)&(**UTF MP-1**)&(**DPRTU MP-2**).

3. Write the formula for mean by assumed mean method (Deviation Method) ? Explain each term in it? (**100 DAP MP-3**)&(**DPRTU MP-3**).

4. Write the formula to find mean of a grouped data by step-deviation method & explain the terms in it ? (**GDMP-2**)&(**VGS MP-6 & 10**).

Q.NO-23: SURFACE AREAS AND VOLUMES (APPLICATION) – 4 MARKS.

VARIOUS MODEL PAPERS-EXAM ORIENTED 4 MARK QUESTIONS-COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

1. 2 cubes each of volume 64 cm^3 are joined end to end. Find the surface area of the resulting cuboid ? (**100 DAP MP-2**)&(**100 DAP)&**(**GD**)&(**UTF MP-1**)&(**STU)&(DPRTU MP-2**)&(**VGS PP-1**).

2. Two cubes, each of edge 4cm, are joined end to end. Find the surface area of the resulting cuboid. **(PFE-2026).**

Q.NO-24: QUADRATIC EQUATIONS (UNDERSTANDING) – 4 MARKS.

VARIOUS MODEL PAPERS–EXAM ORIENTED 4 MARK QUESTIONS–COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

1. State the conditions under which a quadratic equation will have a) Two real and distinct roots b) Two equal roots c) No real roots. (**OR**) State the condition for the nature of roots of the Quadratic Equation $ax^2 + bx + c = 0$ based on the value of the discriminant. (**GD**)& (**GD MP-2**)&(**2025 SCERT MP-2**)&(**2025 SA TERM-1 MP**)&(**100 DAP**)&(**VGS MP-12**)&(**BY SURYA SIR)**.

2. Find the value of k, if the quadratic equations $kx\ (x - 2) + 6 = 0$ has two equal roots. **(GD)&(100 DAP)&(100 DAP MP-1)&(DPRTU MP-1)&(VGS MP-4&PP-2)&(BY SURYA SIR)&(PFE-2026).**

Q.NO-25: INTRODUCTION TO TRIGONOMETRY (KNOWLEDGE) – 4 MARKS.

VARIOUS MODEL PAPERS–EXAM ORIENTED 4 MARK QUESTIONS–COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

1. State three identities that used in Trigonometry ? (**2025 SCERT MP-1**)&(**100 DAP**)&(**UTF MP-2**)&(**GD**)&(**VGS PP-2**)&(**BY SURYA SIR**).

2. Reproduce $(\sin A + \text{cosec } A)^2 + (\cos A + \sec A)^2$ as $7 + \tan^2 A + \cot^2 A$. (**100 DAP**)&(**GD**)&(**UTF MP-1**)&(**STU**)&(**VGS MP-6&PP-1**)&(**BY SURYA SIR**).

Q.NO-26: ARITHMETIC PROGRESSIONS (KNOWLEDGE)– 4 MARKS.

VARIOUS MODEL PAPERS-EXAM ORIENTED 4 MARK QUESTIONS–COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

1. Write the following formulae of A.P. $a_1, a_2, a_3, \ldots$ and name the terms in each. **(2025 SCERT MP-1**)&(**2025 SCERT MP-2**)&(**100 DAP MP-1)&(DPRTU MP-3**).

A) n^{th} term (a_n). (**2025 SA TERM-1 MP**)&(**100 DAP**)&(**GD**)&(**UTF MP-1**)&(**VGS MP-3&4&6**)&(**GT-2026**).

B) Sum of first n terms (S_n). (**100 DAP MP-2**)&(**2025 SA TERM-1 MP**)&(**100 DAP**)&(**GD**)&(**UTF MP-1**)&(**STU**)& (**DPRTU MP-2**)&(**VGS MP-6&PP-3**)&(**GT-2026**).

C) Common difference (d). (**100 DAP**).

D) Sum of first n terms (S_n) (if first term and last term are given). (**100 DAP**).

E) General form of an A.P. (**BY SURYA SIR**)&(**UTF MP-1**).

2. Find the 10^{th} term and the sum of the first 10 terms of the AP: 2, 7, 12, ... ? **(GD)&(BY SURYA SIR)**&(**2025 SCERT MP-2**)&(**BY SURYA SIR**)&**(PFE-2026)**.

3. If Sum of first 14 terms of an AP is 1050 and it's first term is 10, then find 20^{th} term.(**100 DAP MP-3**)&**(100 DAP)&(DPRTU MP-3)&(VGS MP-6)**.

4. find the sum of the first 10 terms of an AP 8, 3, −2, ... **(BY SURYA SIR)**&(**100 DAP MP-2**)&**(DPRTU MP-2)**.

5. Find the 30th term of the AP: 10, 7, 4, ... ?

6. Find the 11th term of the AP: -3, -1/2, 2, ... ?

7. Find the sum of the first 22 terms of the AP: 8, 3, -2, ... ?

8. Find the sum of the first 12 terms of the AP: -37, -33, -29, ... ?

9. Find the sum of the first 100 terms of the AP: 0.6, 1.7, 2.8, ... ?

10. Find the sum of the first 11 terms of the AP: 1/15, 1/12, 1/10, ... ?

11. Find the sum of the first 1000 positive integers ?

1**2**. Find the sum of the first n positive integers ?

Q.NO-27: CIRCLES (ANALYSIS) – 4 MARKS.

VARIOUS MODEL PAPERS-EXAM ORIENTED 4 MARK QUESTIONS–COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

1. Prove that the lengths of tangents drawn from an external point to a circle are equal. (**100 DAP MP-3**)&(**100 DAP**)&(**GD**)&(**UTF MP-4**)&(**STU**)&(**DPRTU MP-3**)&(**VGS MP-4)&(VGS PP-1**)&(**BY SURYA SIR**)&**(GT-2026)&(2025 SA MP-3)**.

2. Prove that the parallelogram circumscribing a circle is a rhombus. (**2025 SCERT MP-1**) &(**100 DAP MP-2**)&(**100 DAP**)&(**GD**)&&(**UTF MP-2**)&(**STU**)&&(**DPRTU MP-2**)&(**VGS MP-9&PP-3**)&(**BY SURYA SIR**)&**(PFE-2026)**.

3. A quadrilateral ABCD is drawn to circumscribe a circle. Prove that AB + CD = AD + BC. (**100 DAP MP-1**)&(**100 DAP**)&(**GD**)&**(UTF MP-3**)&&(**STU**)&(**DPRTU MP-1**)&(**VGS MP-8&14&PP-4**)&(**BY SURYA SIR**)&**(2025 SA MP-3)**.

4. Prove that the tangents drawn at the ends of a diameter of a circle are parallel. (**100 DAP**)&(**UTF MP-2**)&(**STU**)&(**VGS MP-3&5**)&(**BY SURYA SIR**)& (**GD MP-2**)&(**VGS PP-3**).

Q.NO-28: POLYNOMIALS (UNDERSTANDING) – 4 MARKS.

VARIOUS MODEL PAPERS-EXAM ORIENTED 4 MARK QUESTIONS–COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

1. By Observing the graph Answer the following Questions ? (The given graph intersects the x-axis at -2 and 2). (**2025 SCERT MP-1**).

1) what is the Shape of the graph ?

2) How many Zeroes it has ?

3) what are the Zeroes ?

4) Find the Sum of Zeroes ?

2. By observing the graph Answer the following Questions ? (The given graph intersects the x-axis at 2 and 3). **(2025 SCERT MP-2)&**(**GD**)&(**GT-2026)**.

1) What is the shape of the graph?

2) How many zeroes it has?

3) What are the zeroes ?

4) Find the sum of Zeroes ?

5) Find the product of the zeroes?

3. By observing the graph Answer the following Questions. (The given graph intersects the x-axis at -1 and 4). (**100 DAP MP-1**)&(**UTF MP-1)&(DPRTU MP-1**)& (**VGS MP-3)&(VGS MP-4&6&PP-1&2&3)**.

1) What is the name of the graph?

2) How many zeros it has?

3) What are the zeroes?

4) Find the sum of Zeroes.?

4. By observing the graph Answer the following Questions. (The given graph intersects the x-axis at 2 and 6). (**100 DAP MP-2**)&(**DPRTU MP-2**).

1) What is the name of the graph.

2) What is the name of Polynomial in the graph.

3) Write the points of intersection of X-axis.

4) Find the Product of Zeroes.

5. By observing the graph Answer the following Questions. (The given graph intersects the x-axis at 3 only). (**100 DAP MP-3**).

1) What is the name of the graph?

2) How many zeros it has?

3) What are the zeroes?

4) Find the points of intersection of graph with X-axis.

6. Observing the graph, answer the following questions. (The given graph intersects the x-axis at 1 and -1). (**PFE-2026)**.

i) what is the shape of the graph?

ii) write the zeroes of the polynomial shown in the graph?

iii) Find the sum of the zeroes of the polynomial?

iv) Find the product of the zeroes of the polynomial?

7. Observe the graph and answer the following Questions. (The given graph intersects the x-axis at -4 and 1). (**2025 SA TERM-1 MP**).

i) Write the zeroes of the polynomial.

ii) Find the sum of the zeroes of the polynomial.

iii) Find the product of the zeroes of the polynomial.

iv) What is the shape of the graph representing by the polynomial.

8. Answer the following questions by observing the graph. (The given graph intersects the x-axis at -2 and 2). (**2025 SA MP-1**).

a) Name the shape of the graph.

b) Write the number of zeroes of the polynomial.

c) Write the zeroes of the polynomial.

d) Write the product of zeroes of the polynomial.

9. By observing the graph Answer the following questions. (The given graph intersects the x-axis at -1 and 3). (**UTF MP-3**)&(**GDMP-2**).

i) What is the shape of the graph?

ii) How many zeroes it has?

iii) What are the zeroes?

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MOST EXPECTED EXAM ORIENTED 8 MARK QUESTIONS.

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Q.NO-29(A): REAL NUMBERS (ANALYSIS) – 8 MARKS.

VARIOUS MODEL PAPERS-EXAM ORIENTED 8 MARK QUESTIONS–COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

1. Is $\sqrt{2}$ irrational ? Justify your answer ? (**100 DAP MP-3**).

2. Is $\sqrt{3}$ irrational ? Justify your answer ? (**100 DAP MP-1**)&(**GT-2026**)&(**2025 SA TERM-1**).

3. Is $\sqrt{5}$ irrational ? Justify your answer ? (**OR**) Give an example for an irrational number Also prove that it is an Irrational. (**2025 SCERT MP-2**)&(**100 DAP MP-2**)&(**PFE-2026**).

4. Is $\sqrt{7}$ irrational ? Justify your answer ? **(PE APRIL-2025&24)&(PE MAY-2025).**

5. Is $3 + 2\sqrt{5}$ irrational ? Justify your answer ? (**2025 SCERT MP-1**).

Q.NO-30 (A): CO-ORDINATE GEOMETRY (EVALUATION) – 8 MARKS.

VARIOUS MODEL PAPERS-EXAM ORIENTED 8 MARK QUESTIONS–COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

1. Two students claim to have found the points of trisection of the line segment joining A (4, -1) and B (-2, -3) as follows. Students A: (0, 5/3) and (0, 7/3). Students B: (2, -5/3) and (0, -7/3). Who is correct? Justify. (**SCERT MP -1**)&(**GD P.NO-64**)&(**GT-2026**).

(**OR**) Two students, Rahul and Vinay solved the problem of finding the trisection points of the line segment joining A(4, –1) and B(–2, –3). Rahul got the points as (2, –5/3) and (0, –7/3), while Vinay got (2, –2) and (0, –3). Evaluate both answers and decide which one is correct, by giving suitable reasons. (**2025 SA TERM -1**).

2. Two students claim to have found the points of trisection of the line segment joining A (2,-2) and B (-7,4) as follows. Students A: (-1, 0) and (-4, 2). Students B: (0 , -1) and (2 , -4). Who is correct? Justify. **(100 DAP MP-1)&(PFE-2026).**

(**OR**) Find the Co-ordinates of the points of trisection of line Segment joining the points A (2,-2) and B (-7,4). (**GD P.NO-64**).

3. Reena and Meena solved the problem of dividing the line segment joining A(–2, 2) and B(2, 8) into four equal parts.Reena's answer is (–1, 7/2), (0, 5), (1, 13/2). Meena's answer is (–1, 4), (0, 6), (1, 7). Who is correct? Give reasons. (**2025 SA TERM-1**).

Q.NO-31 (A) : PROBABILITY (APPLICATION) – 8 MARKS.

VARIOUS MODEL PAPERS-EXAM ORIENTED 8 MARK QUESTIONS-COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

PROBLEMS ON NUMBERS:

1. A die is rolled. Find the probability of getting (i) a prime number (ii) a number greater than 4 (iii) an odd number (iv) a factor of 2. (**100 DAP MP-3**)&(**GT-2026)**.

2. A game of chance consists of spinning an arrow which comes to rest pointing at one of the numbers 1, 2, 3, 4, 5, 6, 7, 8, and these are equally likely outcomes. Calculate the probability that it will point to (i) 8 (ii) an odd number (iii) a number greater than 3 (iv) a number less than or equal to 8. (**2025 SCERT MP-1**)&(**100 DAP MP-1)**.

3. A piggy bank contains one hundred 50p coins, fifty Rs.1 coins, twenty Rs.2 coins and ten Rs.5 coins. If it is equally likely that one of the coins will fall out when the bank is turned upside down, what is the probability that the coin (i) will be a 50p coin (ii) will not be a Rs.5 coin (iii) will be a Rs.2 coin (iv) will not be a Rs.1 coin? (**2025 SCERT MP-2**).

4. A die is thrown once. Find the probability of getting (i) a prime number (ii) a number lying between 2 and 6 (iii) an odd number (iv) an even number (v) a composite number (vi) an even prime number (vii) a number less than 4 (viii) a number greater than 4. (**V.V.IMP**).

5. Two dice, one blue and one grey, are thrown at the same time. Write down all the possible outcomes. What is the probability that the sum of the two numbers appearing on the top of the dice is (i) 8 ? (ii) 13 ? (iii) less than or equal to 12 ? (iv) 7 ? (v) 4 ? (vi) 11 ? (vii) 3 ? (**PE MARCH-2025)**.

6. A box contains 90 discs numbered from 1 to 90. If one disc is drawn at random from the box, find the probability that it bears (i) a two-digit number (ii) a perfect square number (iii) a number divisible by 5 (iv) a cube number (v) an even number (vi) an odd number (vii) a prime number (viii) a composite number (ix) an even prime number (x) a factor of 32. (**V.V.IMP**).

PROBLEMS ON DECK OF CARDS:

1. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting (i) a red king (ii) a face card (iii) a red face card (iv) the jack of hearts (v) a spade (vi) the queen of diamonds (vii) a non-diamond (viii) the queen of clubs (ix) a jack (face card) (x) a non-heart. **(100 DAP MP-2)&(PFE-2026)**.

2. Five cards the ten, jack, queen, king and ace of diamonds—are well shuffled and placed face downwards. One card is then picked up at random. (i) What is the probability that the card is the queen? (ii) If the queen is drawn and put aside, what is the probability that the second card picked up is (a) an ace? (b) a queen?

3. One card is drawn from a well-shuffled deck of 52 cards. Find the probability that the card will be: (1) an ace (2) not be an ace (3) a club (4) a queen (5) not be a king (6) a jack (7) an ace of diamonds (8) a black ace (9) a red card (10) a number card of hearts?

Q.NO-32 (A): STATISTICS (UNDERSTANDING) – 8 MARKS.

VARIOUS MODEL PAPERS-EXAM ORIENTED 8 MARK QUESTIONS-COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

PROBLEMS ON MEAN BY STEP-DEVIATION METHOD:

FOOD EXPENDITURE AND HOUSEHOLDS PROBLEM: **(2025 SCERT MP-2)&(100 DAP)&(2025 SA MP-2)&(GD P.NO-115)**.

1. The table below shows the daily expenditure on food of 25 households in a locality.

Daily expenditure (in ₹) :	100–150	150–200	200–250	250–300	300–350.
Number of households :	4	5	12	2	2.

Find the mean daily expenditure on food by a suitable method?

LITERACY RATE AND CITY PROBLEM: (100 DAP MP-1)&(100 DAP)&(GD P.NO-115).

2. The following table gives the literacy rate (in percentage) of 35 cities. Find the mean literacy rate.

Literacy rate (in %) : 45–55 55–65 65–75 75–85 85–95.

Number of cities : 3 10 11 8 3.

HEARTBEATS AND WOMEN PROBLEM:(100 DAP)&(GD P.NO-114).

4. Thirty women were examined in a hospital by a doctor and the number of heartbeats per minute were recorded and summarized as follows.Find the mean heartbeats per minute for these women, choosing a suitable method.

No. of heartbeats/min : 65–68 68–71 71–74 74–77 77–80 80–83 83–86.

Number of women : 2 4 3 8 7 4 2.

DAY AND ABSENT STUDENT PROBLEM: (BY SURYA SIR).

5. A class teacher has the following absentee record of 40 students of a class for the whole term. Find the mean number of days a student was absent.

Number of days : 0–6 6–10 10–14 14–20 20–28 28–38 38–40.

Number of students : 11 10 7 4 4 3 1.

PROBLEMS ON MEAN BY DEVIATION METHOD:

WAGE AND WORKERS PROBLEM: (100 DAP)&(GD P.NO-114).

3. Consider the following distribution of daily wages of 50 workers of a factory.

Daily wages (in ₹) : 500–520 520–540 540–560 560–580 580–600.

Number of workers : 12 14 8 6 10.

Find the mean daily wages of the workers of the factory by using an appropriate method?

PROBLEMS ON MEDIAN:

CONSUMPTION AND CONSUMERS PROBLEM: (100 DAP MP-3)&(100 DAP)&(NTR DCEB ST)&(GD WG)&(GD MP-1)&(PFE-2026)&(GD P.NO-119).

1. The following frequency distribution gives the monthly consumption of electricity of 68 consumers of a locality. Find the median of monthly consumption

Monthly consumption (in units) : 65-85 85-105 105-125 125-145 145-165 165-185 185-205.

Number of consumers : 4 5 13 20 14 8 4.

WEIGHT & STUDENTS PROBLEM: (100 DAP)&(2025 SA TERM-1 MP)&(GD P.NO-118).

2. The distribution below gives the weights of 30 students of a class.

Find the median weight of the students.

Weight (in kg) : 40-45 45-50 50-55 55-60 60-65 65-70 70-75.

Number of students : 2 3 8 6 3 6 2.

LIFETIME & LAMPS PROBLEM: (100 DAP)&(GD MP-2)&(GD P.NO-118).

3. The following table gives the distribution of the life time of 400 neon lamps:

Life time (in hours)	Number of lamps
1500 - 2000	14
2000 - 2500	56
2500 - 3000	60
3000 - 3500	86
3500 - 4000	74
4000 - 4500	62
4500 - 5000	48.

Find the median lifetime of a lamp?

PROBLEMS ON MODE:

LIFETIMES & FREQUENCY PROBLEM: (100 DAP MP-2)&(100 DAP)&(GD P.NO-116)&(GT-2026).

1. The following data gives the information on the observed lifetimes (in hours) of 225 electrical components :

Lifetimes (in hours)	Frequency
0 - 20	10
20 - 40	35
40 - 60	52
60 - 80	61
80 - 100	38
100 - 120	29.

Determine the modal lifetimes of the components.

CARS & FREQUENCY PROBLEM: (100 DAP)&(GD P.NO-117).

2. A student noted the number of cars passing through a spot on a road for 100 periods each of 3 minutes and summarized it in the table given below. Find the mode of the data:

No. of cars	Frequency
0 - 10	7
10 - 20	14
20 - 30	13
30 - 40	12
40 - 50	20
50 - 60	11
60 - 70	15
70 - 80	8.

STUDENT PER TEACHER & STATES/U.T PROBLEM: (GD P.NO-117).

3. The following distribution gives the state-wise teacher-student ratio in higher secondary schools of India. Find the mode of this data?.

Number of students per teacher	Number of states / U.T.
15 - 20	3
20 - 25	8
25 - 30	9
30 - 35	10
35 - 40	3
40 - 45	0
45 - 50	0
50 - 55	2.

Q.NO-33 (B): PAIR OF LINEAR EQUATIONS IN 2 VARIABLES (APPLICATION)– 8 MARKS.

VARIOUS MODEL PAPERS-EXAM ORIENTED 8 MARK QUESTIONS-COMPILED BY BANOTHU SURYA SIR-ZPHS CHANDRAGUDEM MYLAVARAM MDL NTR Dt-9490931275.

1. 5 Pencils and 7 pens together Cost Rs 50 where as 7 pencils and 5 pens together Cost Rs 46. Find the Cost of one pencil and that of one pen.Form the pair of linear equations for the above problem and find their Solution graphically ? (**2025 SCERT MP-1)&**(**100 DAP MP - 1)&(2025 TERM -1**).

2. 10 Students of a class took part in a mathematics quiz. If the number of girls is 4 more than the number of boys.Find the number of boys and girls who took part in the quiz.Form the pair of linear equations for the above problem and find their Solution graphically ? (**2025 SCERT MP-2)&**(**100 DAP MP-2**)&(**2025 SA MP-1**)&(**2026 GT)**.

3. Form the pair of linear equations for the following problem and find the solution by graphical method. “Sum of the two numbers is 10 and their difference is 2”. (**100 DAP MP-3**).

4. Draw the graphs of the equations x–y+1=0 and 3x+2y–12=0.Determine the Co-ordinates of the Vertices of the triangle formed by these lines and the x-axis and shade the triangular region? (**SSC MAY-2025**).

-----BEST OF LUCK MY DEAR STUDENTS-----