I. **In the following question, four choices are given for each question, choose and write the correct answer along with its alphabet.**   **1×4=4**

1. The distance of the point p(-3,-4) from the x- axis is,
   A) 3   B) -3   C) 4   D) -7

2. HCF of 168 and 126 is
   A) 21   B) 42   C) 14   D) 18

3. Probability of an impossible event is
   A) 0   B) 1   C) ½   D) 2

4. Sum and zeros of the quadratic equation $3x^2 - x - 4 = 0$ are
   A) -1/3 , -3/4   B) 1/3 , -4/3   C) 3 , 4   D) -3 , -4

II. **Answer the following questions:**   **1×3=3**

5. Write the number of zeros of the polynomial p(x) = $3x^4+x^3+2x^2+x-5$.
6. Write the formula to calculate the curved surface area of the frustum of a cone.
7. Find the co ordinates of mid points of the points (-3, -9) and (5, 3).

III. **Answer the following:**   **2×4=8**

8. Solve the following pair of linear equations by any method $x + 2y = 3$ and $7x - 15y = 2$.
9. Draw a circle of radius 5cm and construct a pair of tangents such that the angle between them is 60^0.
10. Solve $x^2 - 3x - 10 = 0$ using formula.
11. Prove that $5 + 2\sqrt{3}$ is an irrational number.

IV. **Answer the following:**   **3×4=12**

12. Prove that "the lengths of tangents drawn from an external point to a circle are equal".
13. Draw a right triangle in which is sides (other than hypotenuse) are of lengths 4cm and 3cm. then construct another triangle whose sides are 5/3 times the corresponding sides of the given triangle.
14. Calculate the mean of the following frequency distribution table.

C.I	1-3	3-5	5-7	7-9	9-11
f	7	8	2	2	1

15. For the data given below draw less than ogive graph.

C.I	500-520	520-540	540-560	560-580	580-600
Frequency	12	14	8	6	10

V. **Answer the following:**   **4×2=8**

16. Prove that "the ratio of two similar triangles is equal to the square of the ratio of their corresponding sides".
17. Find the solution of following pairs of linear equation by the graphical method.
    $x + 3y = 6$ and $2x - 3y = 12$

I. In the following question, four choices are given for each question, choose and write the correct answer along with its alphabet.   1×4=4

1. Probability of a sure event is
    A) 0   B) 1   C) ½   D) 2

2. The distance of the point p(3,-4) from the origin is
    A) 7 unit   B) 5 unit   C) 4 unit   D) 3 unit

3. If HCF of 420 and 130 is 10 then LCM is
    A) 546   B) 55   C) 526   D) 446

4. Quadratics polynomial have sum and product of its zeroes are 4,1 respectively question is
    A) $x^2 - 4x - 1 = 0$ B) $x^2 - x - 4 = 0$ C) $x^2 - 4x + 1 = 0$ D) $x^2 + 4x - 1 = 0$

II. Answer the following questions: 1×3=3

7. Write the degree of the polynomial $p(x) = x^3 - 3x^4 + 5x^2 + x - 10$

5. Write the formula to calculate the volume of the frustum of a cone.

6. Write the general form of pair of linear equations in two variables.

III. Answer the following: 2×4=8

7. Solve the following pair of linear equations by any method $2x + 3y = 13$ and $5x - 4y = -2$.

8. Draw a line segment of length 7cm and divide it in the ratio 2:3.measure the two parts.

9. Prove that $5 - \sqrt{3}$ is an irrational number.

10. Solve by using formula $x^2 - 2x - 4 = 0$.
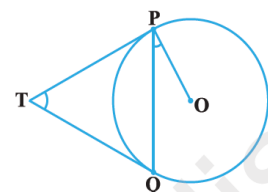
IV. Answer the following: 3×4=12

11. For the data given below draw more than ogive graph.

Marks	0-30	30-60	60-90	90-120	120-150
Frequency	8	12	10	11	9

12. Draw a triangle ABC with sides BC=6cm, AB=5cm and $< ABC = 60^0$. Then construct a triangle whose sides are ¾ times the corresponding sides of ΔABC.

13. The median of the following data is 525. Find the values of x and y, if the total frequency is 100.

C.I	0-100	100-200	200-300	300-400	400-500	500-600	600-700	700-800	800-900	900-1000
Frequency	2	5	x	12	17	20	y	9	7	4

14. Two tangents TP and TQ are drawn to a circle with centre O from external point T. Prove $< PTO = 2 < OPQ$.

V. Answer the following: 4×2=8

15. State and prove Pythagoras theorem.

16. Solve by graphically. $x + 2y = -2$ And $3x + 2y = 2$

I. **In the following question, four choices are given for each question, choose and write the correct answer along with its alphabet.** **1×4=4**

1. This of the following can not be the probability of an event.
   A) 2/3   B) -1.5   C) 15%   D) 0.7

2. Which of the following is the decimal expansion of a irrational number?
   A) 4.5621   B) $0.\overline{12}$ C) 5.010010001……….   D) 6.03

3. Write the number of zeros of the graph y=p(x).
   A) 5   B) 4   C) 3   D) 6
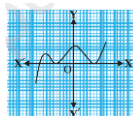
4. The pair of equations $x + 2y + 5 = 0$ and $-3x - 6y + 1 = 0$
   A) a unique solution   B) exactly two solutions   C) infinitely many solution
   D) no solution

II. **Answer the following questions:** **1×3=3**

5. Write the formula to calculate the total surface area of the frustum of a cone.

6. State Euclid's division lemma.

7. Find the co ordinates of midpoint of the points (-5, 7) and (-1, 3).

III. **Answer the following:** **2×4=8**

8. Solve for x and y any method $2x + y = 5$ and $3x + 2y = 8$.

9. Prove that $5 + \sqrt{3}$ is an irrational number.

10. Solve by using formula $x^2 + 7x - 60 = 0$.

11. Draw a circle of radius 6cm. From a point 10cm away from its centre, construct the pair of tangents to the circle and measure their lengths.

IV. **Answer the following:** **3×4=12**

12. Find the median wages for the following frequency distribution.

Wage per day (in R.S)	135-140	140-145	145-150	150-155	155-160	160-165
No. of workers	4	7	18	11	6	5

13. Draw a triangle ABC with the side BC= 7cm $< B = 45^0$,$< A = 105^0$. Then construct a triangle whose sides are 4/3 times the corresponding sides of the ΔABC.

14. Prove that the parallelogram circumscribing a circle is a rhombus.

15. For the data given below draw less than ogive graph.

| Marks	0-30	30-60	60-90	90-120	120-150
Frequency	8	12	10	11	9

V. **Answer the following:** **4×2=8**

16. Solve by graphically
    $3x + 2y = 12$ and $x - y = -1$

17. State and prove Thale's theorem.

I. **In the following question, four choices are given for each question, choose and write the correct answer along with its alphabet.   1×4=4**

1. $7 \times 11 \times 13 + 13$ is number
   A) Prime   B) composite   C) Rational   D) Irrational
2. The distance between of the point (-6, 8) from the origin is
   A) 8 unit   B) $2\sqrt{7}$ unit   C) 10 unit   D) 6 unit
3. A Die is thrown once the probability of getting a prime number
   A) ½   B) 3/2   C) 1   D) 0
4. The graph of linear pair of equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ are given number of solution.
   A) One   B) infinite   C) zero   D) two
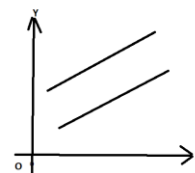
II. **Answer the following questions: 1×3=3**

5. Write the formula of total surface area of cone.
6. Find the sum of zeroes of the quadratic polynomial $x^2 + 7x + 1$.
7. State the fundamental theorem of arithmetic

III. **Answer the following: 2×4=8**

8. Solve by formula $3x^2 - 5x + 2 = 0$
9. Draw a line segment of length 6cm and divide it in the ratio 3:2. Measure the two parts.
10. Prove that $3 + 2\sqrt{5}$ is an irrational number.
11. Solve for x and y any suitable method $2x + y + 5 = 0$ and $3x - 2y - 12 = 0$.

IV.**Answer the following: 3×4=12**

12. Prove that in the concentric circles, the chord of the larger circle touches the smaller circle, is bisected at the point of contact.
13. The following data gives the information on the observed life times (in hours) of 225 electrical components. Determine the modal life times of the components.

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

14. Construct a isosceles triangle whose base is 8cm and altitude 4cm and then another triangle whose sides are $1\frac{1}{2}$ times the corresponding sides of the isosceles triangle.
15. Draw less then ogive curve for the following data

Daily wages	0-10	10-20	20-30	30-40	40-50	50-60
No. of workers	3	9	15	30	18	5

I. **Answer the following: 4×2=8**

16. "In two triangles, corresponding angles are equal, and then their corresponding sides are in the same ratio" prove that.
17. Solve by graphically. $2x - y = 2$ And $4x - y = 4$

I.   In the following question, four choices are given for each question, choose and write the correct answer along with its alphabet.   1×4=4

1. If probability of winning game is 0.3, then what is the probability of losing it?
    A) 0.1   B) 0.3   C) 0.7   D) 1.3
2. The degree of polynomial $p(x) = 2x^2 - 4x^3 + 3x + 5$
    A) 0   B) 1   C) 2   D) 3
3. If the lines $3x + 2ky = 2$ and $2x + 5y + 1 = 0$ are parallel, then the value of k
    A) -5/4   B) 2/5   C) 15/4   D) 3/2
4. The HCF of (12, 15) is 3. Then the LCM of (12,15) is
    A) 60   B) 45   C) 36   D) 90

II.   Answer the following questions: 1×3=3

5. Write the formula of volume of cone.
6. Write the number of zeros of the graph y=p(x).
7. Express the number as product of its prime factors of 156.
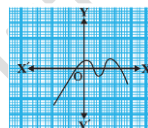
V.   Answer the following: 2×4=8

8. Solve for x and y any suitable method $2x + 3y = 11$ and $2x - 4y = -24$.
9. Solve by formula $2x^2 - 3x + 1 = 0$
10. Prove that $6 + \sqrt{2}$ is an irrational number.
11. Draw a circle of radius 4.5cm and construct a pair of tangents such that the angle between them is 60^0.

VI.Answer the following: 3×4=12

12. Prove that he angle between the two tangents drawn from an external point to a circle is supplementary to the angle subtended by the line- segment joining the points of contact at the centre.
13. The arithmetic mean of the following frequency distribution is 10. Find the missing frequency 'x'.

C.I	1-5	5-10	10-15	15-20
f	2	3	x	1

14. Construct a triangle of sides 4cm, 5cm, and 6cm and then a triangle similar to it whose sides are 2/3 of the corresponding sides of the first time triangle.
15. Draw the more than draw ogive of following distribution table.

C.I	15-25	25-35	35-45	45-55	55-65	65-75	75-85
F	6	11	7	4	4	2	1

I.   Answer the following: 4×2=8

16. Solve by graphically. $2x - 3y = -4$ And $x + 2y = 5$
17. Prove that "If one angle of a triangle is equal to one angle of the other triangle and the sides including then the two triangle and sides including these are proportional, then the two triangles are similar".