

| | | |
|-----|---|----------|
| 4. | Ratio in which the line $3x + 4y = 7$ divides the line segment joining the points (1, 2) and (-2, 1) is: (a)3:5 (b) 4:6 (c) 4:9 (d)none | 1 |
| 5. | If the surface area of sphere is 616 cm^2 , its radius is: (a)14cm (b) 7cm (c)16cm (d) 8cm | 1 |
| 6. | $(\cos^4 A - \sin^4 A)$ is equal to (a) $1 - 2\cos^2 A$ (b) $2\sin^2 A - 1$ (c) $\sin^2 A - \cos^2 A$ (d) $2\cos^2 A - 1$ | 1 |
| 7. | What is the next terms of the A.P $\sqrt{8}, \sqrt{18}, \sqrt{32}, \dots$? (a) $\sqrt{5}$ (b) $\sqrt{55}$ (c) $\sqrt{50}$ (d) $\sqrt{15}$ | 1 |
| 8. | If 18, a, b, -3 are in A.P, then $a+b=?$ (a)7 (b) 11 (c) 15 (d) 9 | 1 |
| 9. | The circumference of a circular field is 528cm . Then its radius is: (a)42cm (b) 56cm (c)72cm (d) 84cm | 1 |
| 10. | The perimeter of the sector with the radius 10.5 cm and the sector angle is 60° is : (a)11cm (b) 23cm (c)32 (d)41cm | 1 |
| 11. | H.C.F. of 6, 72 and 120 is | 1 |
| 12. | Degree of remainder is always.....than degree of divisor. | 1 |
| 13. | Length of arc of a sector angle 45° of circle of radius 14cm is | 1 |
| 14. | The length of the diagonal of a cube that can be inscribed in a sphere of radius 7.5 cm is | 1 |
| 15. | A dice is thrown once, the probability of getting a prime number is | 1 |
| 16. | Find the positive root of $\sqrt{3x^2 + 6} = 9$. | 1 |
| 17. | The diameter of a wheel is 1.26 m. What the distance covered in 500 revolutions. | 1 |
| 18. | A rectangular sheet paper 40 cm \times 22 cm is rolled to form a hollow cylinder of height 40 cm. Find the radius of the cylinder | 1 |
| 19. | A cylinder, a cone and a hemisphere have same base and same height. Find the ratio of their volumes. | 1 |

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| 20. | 20 tickets, on which numbers 1 to 20 are written, are mixed thoroughly and then a ticket is drawn at random out of them. Find the probability that the number on the drawn ticket is a multiple of 3 or 7. | <u>1</u> |
| SECTION-B | | |
| 21. | Solve the following pair of linear equations by cross multiplication method: $x + 2y = 2$ and $x - 3y = 7$ | <u>2</u> |
| 22. | If the point $P(x, y)$ is equidistant from the points $Q(a + b, b - a)$ and $P(a - b, a + b)$ then prove that $bx = ay$. | <u>2</u> |
| 23. | <p>As a part of a campaign, a huge balloon with message of "AWARENESS OF CANCER" was displayed from the terrace of a tall building. It was held by string of length 8 m each, which inclined at an angle of 60° at the point, where it was tied as shown in the figure</p>  <p>(i) What is the length of AB?</p> <p>(ii) If the perpendicular distance from the centre of the circle to the chord AB is 3 cm, then find the radius of the circle</p> | <u>2</u> |
| 24. | <p>Find the mean of the data using an empirical formula when it is given that mode is 50.5 and median in 45.5.</p> <p style="text-align: center;">OR</p> <p>A bag contains 6 red and 5 blue balls. Find the probability that the ball drawn is not red</p> | <u>2</u> |
| 25. | If two possible integers p and q are written as $p = a^2b^3$ and $q = a^3b$; a, b are prime then verify that $LCM(p, q) \times HCF(p, q) = pq$ | <u>2</u> |

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|------------------|--|----------|
| 26. | <p>Quadratic polynomial $2x^2 - 3x + 1=0$.has zeroes as α and β . Now form a quadratic polynomial whose zeroes are 3α and 3β.</p> <p style="text-align: center;">OR</p> <p>If α and β are the zeroes of a quadratic polynomial such that $\alpha + \beta = 24$ and $\alpha - \beta = 8$. Find the quadratic polynomial having α and β as its zeroes.</p> | <u>2</u> |
| SECTION-C | | |
| 27. | The sum of two digit number is 9 .Also , nine time this number is twice the number obtained by reversing the order of the digits .Find the numbers. | <u>3</u> |
| 28. | <p>Find the 20^{th} term of an A.P. whose 3^{rd} term is 7 and the seventh term exceeds three times the 3^{rd} term by 2. Also find its n^{th} term a_n.</p> <p style="text-align: center;">OR</p> <p>In an A.P. the sum of first n terms is $\frac{3n^2}{2} + \frac{13n}{2}$.Find 25^{th} term.</p> | <u>3</u> |
| 29. | $\frac{\tan \theta}{1 - \cot \theta} + \frac{\cot \theta}{1 - \tan \theta} = 1 + \sec \theta \csc \theta$ | <u>3</u> |
| 30. | A box contains 90 discs which are numbered from 1 to 90. If one disc is drawn at random from the box, find the probability that bears (i) a two-digit number (ii) a perfect square (iii) a number is divisible by 5. | <u>3</u> |
| 31. | Prove that the area of an equilateral triangle described on one side of a square is equal to half the area of the equilateral triangle described on one side of its diagonals. | <u>3</u> |
| 32. | <p>Construct a ΔABC in which $AB=4$ cm, $BC=5$cm and $AC=6$cm. Then construct another triangle whose sides are $\frac{7}{5}$ times the corresponding sides of ΔABC .</p> <p style="text-align: center;">OR</p> <p>Draw a circle of radius 5 cm . Draw a pair of tangents to this circle ,which are inclined to each other at an angle of 60°.</p> | <u>3</u> |
| 33. | A farmer connects a pipe of internal diameter 20 cm form a canal into a cylindrical tank in her field, which is 10m in diameter and 2m deep. If | <u>3</u> |

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|----------|--|----------|-------|-------|-------|-------|-------|----------|-------|-------|-------|----|----|----|----|----|---|---|---|--|
| | water flows through the pipe at the rate of 3km/h, in how much time will the tank be filled? | | | | | | | | | | | | | | | | | | | |
| 34. | Prove that $\sqrt{3}$ is an irrational number and hence prove the $7+2\sqrt{3}$ is an irrational number. | <u>3</u> | | | | | | | | | | | | | | | | | | |
| | SECTION-D | | | | | | | | | | | | | | | | | | | |
| 35. | State and prove Thales Theorem. OR State and prove Pythagoras Theorem. | <u>4</u> | | | | | | | | | | | | | | | | | | |
| 36. | Prove that the parallelogram circumscribing is a rhombus. | <u>4</u> | | | | | | | | | | | | | | | | | | |
| 37. | Find the area shaded region. | <u>4</u> | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| 38. | From the top of tower, 100 m high, a man observes two cars on the opposite sides of the tower with the angles of depression 30° & 45° respectively. Find the distance between the cars. | <u>4</u> | | | | | | | | | | | | | | | | | | |
| 39. | The following distribution gives the weights of 60 students of a class. Find the mean and mode weights of the students. | <u>4</u> | | | | | | | | | | | | | | | | | | |
| | <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Weight</td> <td>40-44</td> <td>44-48</td> <td>48-52</td> <td>52-56</td> <td>56-60</td> <td>60-64</td> <td>64-68</td> <td>68-72</td> </tr> <tr> <td>Freq.</td> <td>4</td> <td>6</td> <td>10</td> <td>14</td> <td>10</td> <td>8</td> <td>6</td> <td>2</td> </tr> </table> | Weight | 40-44 | 44-48 | 48-52 | 52-56 | 56-60 | 60-64 | 64-68 | 68-72 | Freq. | 4 | 6 | 10 | 14 | 10 | 8 | 6 | 2 | |
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| Freq. | 4 | 6 | 10 | 14 | 10 | 8 | 6 | 2 | | | | | | | | | | | | |
| | OR | | | | | | | | | | | | | | | | | | | |
| | Change the distribution in 'less than type' ogive: | | | | | | | | | | | | | | | | | | | |
| | <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Weight</td> <td>0-10</td> <td>10-20</td> <td>20-30</td> <td>30-40</td> <td>40-50</td> </tr> <tr> <td>Students</td> <td>14</td> <td>17</td> <td>22</td> <td>26</td> <td>18</td> </tr> </table> | Weight | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | Students | 14 | 17 | 22 | 26 | 18 | | | | | | | |
| Weight | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | | | | | | | | | | | | | | | |
| Students | 14 | 17 | 22 | 26 | 18 | | | | | | | | | | | | | | | |
| 40. | Solve $x: \frac{1}{a+b+x} = \frac{1}{a} + \frac{1}{b} + \frac{1}{x}, x \neq 0, a \neq 0, b \neq 0, x \neq -(a+b)$. | <u>4</u> | | | | | | | | | | | | | | | | | | |

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