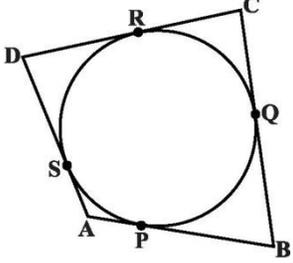
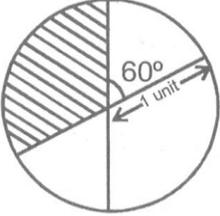
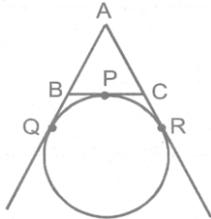


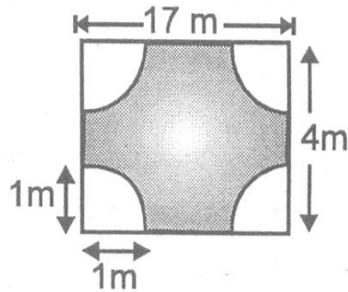


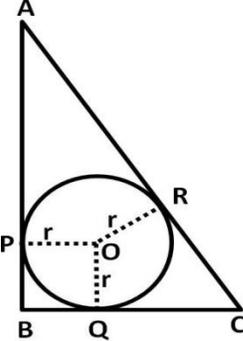
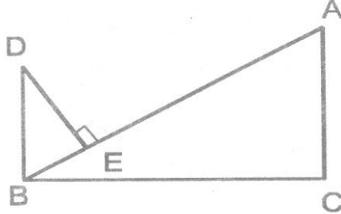
S.NO	MCQ(1 Mark Each)
1	$7 \times 11 \times 13 + 7$ is a (a) prime number (b) composite number (c) odd number (d) none
2	Which of these numbers always ends with the digit 6? (a) 4^n (b) 2^n (c) 6^n (d) 8^n
3	The value of k for which (-4) is a zero of the polynomial $x^2 - x - (2k + 2)$ is (a)3 (b)9 (c)6 (d)-1
4	If the zeroes of the quadratic polynomial $ax^2 + bx + c$, $c \neq 0$ are equal, then (a) c and a have opposite sign (b) c and b have opposite sign (c) c and a have the same sign (d) c and b have the same sign
5	For a pair of linear equations to be consistent and dependent the pair must have (a) no solution (b) unique solution (c) infinitely many solutions (d) none of these
6	Graph of every linear equation in two variables represent a ____ (a) point (b) straight line (c) curve (d) triangle
7	If one root of $5x^2 + 13x + k = 0$ is reciprocal of the other then $k =$ ----- (a) 0 (b) 5 (c) 1 (d) 6
8	The roots of the equation $x^2 - x - 3 = 0$ are (A) Imaginary (B) Rational (C) Irrational (D) None of these
9	Which of the following is not a quadratic equation? (a) $x - \frac{3}{4} = 4$ (b) $3x - \frac{5}{x} = x^2$ (c) $x + \frac{1}{x} = 3$ (d) $x^2 - 3 = 4x^2 - 4x$
10	The value of k for which equation $9x^2 + 8kx + 16 = 0$ has equal roots: (a) only 3 (b) only -3 (c) ± 3 (d) 9
11	If $p - 1$, $p + 3$, $3p - 1$ are in AP, then p is equal to (a) 4 (b) -4 (c) 2 (d) -2
12	If the third term of an AP is 12 and the seventh term is 24, then the 10th term is (a) 33 (b) 34 (c) 35 (d) 36
13	8 th term of the series $2\sqrt{2} + \sqrt{2} + 0 + \dots$ will be (a) $-5\sqrt{2}$ (b) $5\sqrt{2}$ (c) $10\sqrt{2}$ (d) $-10\sqrt{2}$
14	If 9 th term of an A.P be zero then the ratio of its 29 th and 19 th term is (a) 1 : 2 (b) 2 : 1 (c) 1 : 3 (d) 3 : 1
15	If in triangle ABC and DEF, $\frac{AB}{DE} = \frac{BC}{FE}$, then they will be similar when (a) $\angle B = \angle E$ (b) $\angle A = \angle D$ (c) $\angle B = \angle D$ (d) $\angle A = \angle F$
16	In ΔABC , $DE \parallel BC$ and $AD = 4\text{cm}$, $AB = 9\text{cm}$. $AC = 13.5\text{cm}$ then the value of EC is (a) 6cm (b) 7.5cm (c) 9cm (d) none of these
17	The perimeters of two similar triangles are 25 cm and 15 cm respectively. If one side of first triangle is 9 cm, then the corresponding side of the other triangle is (a) 6.2 cm (b) 3.4 cm (c) 5.4 cm (d) 8.4 cm
18	In a triangle ABC, a straight line parallel to BC intersects AB and AC at point D and E respectively. If the area of ADE is one-fifth of the area of ABC and $BC = 10\text{ cm}$, then DE equals (a) 2 cm (b) $2\sqrt{5}\text{ cm}$ (c) 4 cm (d) $4\sqrt{5}\text{ cm}$

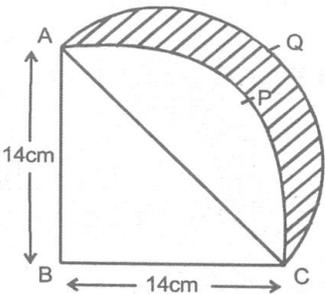
19	The length of the tangent drawn from a point 8 cm away from the centre of a circle of radius 6 cm is (a) $\sqrt{7}$ cm (b) $2\sqrt{7}$ cm (c) 10 cm (d) 5 cm
20	Two circles touch each other externally at C and AB is a common tangent to the circle. Then $\angle ACB =$ --- (a) 60° (b) 45° (c) 30° (d) 90°
21	In the below figure the circle touches all the sides of a quadrilateral ABCD whose three sides are AB = 6 cm, BC = 7 cm, CD = 4 cm, then AD is (a) 2 cm (b) 5 cm (c) 3 cm (d) 6 cm
	
22	If tangents PA and PB from a point P to a circle with centre O are inclined to each other at an angle of 80° , then $\angle POA$ is equal to (a) 60° (b) 70° (c) 100° (d) 50°
23	Length of the median from B on AC where A(-1, 3), B(1, -1), C (5, 1) is (a) $\sqrt{18}$ (b) $\sqrt{10}$ (c) $2\sqrt{3}$ (d) 4
24	If (3, -4) and (-6, 5) are the extremities of the diagonal of a parallelogram and (-2, 1) is third vertex, then its fourth vertex is (a) (-1, 0) (b) (0, -1) (c) (-1, 1) (d) None of these
25	Point A(-5, 6) is at a distance of: (a) 61 units from the origin (b) 11 units from the origin (c) $\sqrt{61}$ units from the origin (d) $\sqrt{11}$ units from the origin
26	If the points (1, x), (5, 2) and (9, 5) are collinear, then the value of x is (a) $\frac{5}{2}$ (b) 1 (c) $-\frac{5}{2}$ (d) -1
27	If $\sin A = \frac{24}{25}$, then $\cos A$ is (a) $\frac{7}{25}$ (b) $\frac{25}{24}$ (c) $\frac{1}{2}$ (d) $\frac{1}{25}$
28	In $\triangle ABC$, right-angled at B, AB = 5 cm and $\angle ACB = 30^\circ$ then the length of the side BC is (a) $5\sqrt{3}$ cm (b) $2\sqrt{3}$ cm (c) 5 cm (d) 10 cm
29	If $\alpha + \beta = 90^\circ$ and $\sin \alpha = \frac{1}{3}$, then $\sin \beta$ is (a) $\frac{\sqrt{2}}{3}$ (b) $\frac{2\sqrt{2}}{3}$ (c) $\frac{3}{4}$ (d) $\frac{2}{3}$
30	The value of $\tan 5^\circ \tan 10^\circ \tan 15^\circ \tan 20^\circ \dots \tan 85^\circ$, is (a) 1 (b) 3 (c) 2 (d) 0
31	Upper part of a vertical tree which is broken over by the wind just touches the ground and makes an angle of 30° with the ground. If the length of the broken part is 20 metres, then the remaining part of the tree is of length (a) 20 m (b) $10\sqrt{3}$ m (c) $10\sqrt{2}$ m (d) 10 m
32	The height of a tower is 10m. What is the length of its shadow when Sun's altitude is 45° ? (a) 10m (b) 30m (c) 20m (d) 15 m
33	If the ratio of the height of a tower and the length of its shadow is $\sqrt{3} : 1$, what is the angle of elevation of

	theSun? (a)30° (b)60° (c)45° (d) 90°
34	The area of a circle is $49\pi\text{cm}^2$. Its circumference is (a) $7\pi\text{cm}$ (b) $14\pi\text{cm}$ (c) $21\pi\text{cm}$ (d) $28\pi\text{cm}$
35	The difference between the circumference and radius of a circle is 37 cm. The area of the circle is (a) 111cm^2 (b) 184cm^2 (c) 154cm^2 (d) 259cm^2
36	If a rectangle of sides 5 cm and 15 cm is to be divided into three squares of equal area, then the sides of the squares will be : (a) 4 cm (b) 6 cm (c) 7 cm (d) None
37	The area of the shaded region in the given figure is : (a) $\frac{\pi}{3}$ sq. units (b) $\frac{\pi}{4}$ sq. units (c) $\frac{\pi}{2}$ sq. units (d) π^2 sq. units
	
38	There is a cylinder circumscribing the hemisphere such that their bases are common. The ratio of their volume is (a) 1 : 3 (b) 1 : 2 (c) 2 : 3 (d) 3 : 4
39	Two cones have their heights in the ratio 1 : 3 and the radii of their bases are in the ratio 3 : 1, then the ratio of their volumes is (a) 1 : 3 (b) 27 : 1 (c) 3 : 1 (d) 1 : 27
40	The area of three adjacent faces of a cube is x, y and z. Its volume V is (a) $V=xyz$ (b) $V^3=xyz$ (c) $V^2=xyz$ (d) none of these
41	Construction of cumulative frequency table is useful in determining the (a) mode (b) median (c) mean (d) all the above three measures
42	For a frequency distribution, mean, median and mode are connected by the relation (a) mode = 3mean – 2median (b) mode = 2median – 3mean (c) mode = 3median – 2mean (d) mode = 3median + 2mean
43	If the arithmetic mean of 5, 7, 9, x is 9 then the value of x is (a) 11 (b) 15 (c) 18 (d) 16
44	The mode of the distribution 3, 5, 7, 4, 2, 1, 4, 3, 4 is (a) 7 (b) 4 (c) 3 (d) 1
45	If three coins are tossed simultaneously, then the probability of getting at least two heads, is (a) $\frac{3}{8}$ (b) $\frac{1}{4}$ (c) $\frac{1}{2}$ (d) $\frac{1}{8}$
46	A number is selected from number 1 to 27. The probability that it is prime is (a) $\frac{2}{3}$ (b) $\frac{1}{6}$ (c) $\frac{2}{9}$ (d) $\frac{1}{3}$
47	A coin is flipped to decide which team starts the game. What is the probability of your team will start? (a) 1 (b) 0 (c) $\frac{1}{4}$ (d) $\frac{1}{2}$
48	A dice is thrown once. What will be the probability of getting a prime number? (a) $\frac{2}{3}$ (b) $\frac{1}{6}$ (c) 0 (d) $\frac{1}{2}$
SA-I SHORT ANSWER TYPE QUESTIONS (2 Marks Each)	
49	Use Euclid's division algorithm to find the H.C.F. of 196 and 38318.

50	Find the quadratic polynomial whose zeroes are $2 + \sqrt{3}$ and $2 - \sqrt{3}$																		
51	Solve by Equating the Coefficients: $9x - 4y = 8$ $13x + 7y = 101$																		
52	Solve the following quadratic equation (if they exist) by the method of completing the square $9x^2 - 15x + 6 = 0$																		
53	Which term of the sequence 72, 70, 68, 66,..... is 40?																		
54	In ΔABC , $AD \perp BC$. Prove that $AB^2 - BD^2 = AC^2 - CD^2$.																		
55	Find the coordinates of the point which divides the line segment joining the points (6, 3) and (-4, 5) in the ratio 3: 2 internally.																		
56	If $\tan \theta = \frac{4}{3}$, show that $(\sin \theta + \cos \theta) = \frac{7}{5}$																		
57	A circle touches the BC of a ΔABC at P and touches AB and AC when produced at Q and R respectively as shown in figure, Show that $AQ = \frac{1}{2}$ (Perimeter of ΔABC) 																		
58	An observer, 1.5 m tall, is 28.5 m away from a tower 30 m high. Find the angle of elevation of the top of the tower from his eye.																		
59	Divide a line segment of length 12 cm internally in the ratio 3: 2.																		
60	The diameter of the wheels of a bus is 140 cm. How many revolutions per minute must a wheel make in order to move at a speed of 66 km/hr?																		
61	How many balls, each of radius 1 cm, can be made from a solid sphere of lead of radius 8 cm?																		
62	Find the mode of following distribution: <table border="1" data-bbox="224 1121 1479 1234"> <tbody> <tr> <td>Class Interval</td> <td>0-10</td> <td>10-20</td> <td>20-30</td> <td>30-40</td> <td>40-50</td> <td>50-60</td> <td>60-70</td> <td>70-80</td> </tr> <tr> <td>Frequency</td> <td>5</td> <td>8</td> <td>7</td> <td>12</td> <td>28</td> <td>20</td> <td>10</td> <td>10</td> </tr> </tbody> </table>	Class Interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	Frequency	5	8	7	12	28	20	10	10
Class Interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80											
Frequency	5	8	7	12	28	20	10	10											
63	Two dice are thrown together. Find the probability that the product of the numbers on the top of the dice is (i) 6 (ii) 12																		
SA-II SHORT ANSWER TYPE QUESTIONS (3 Marks Each)																			
64	Two unbiased coins are tossed simultaneously. Find the probability of getting (i) two heads (ii) at least one head (iii) at most one head.																		
65	Find the median wages for the following frequency distribution: <table border="1" data-bbox="224 1461 1461 1608"> <tbody> <tr> <td>Wages per day</td> <td>61-70</td> <td>71-80</td> <td>81-90</td> <td>91-100</td> <td>101-110</td> <td>111-120</td> </tr> <tr> <td>No. of workers</td> <td>5</td> <td>15</td> <td>20</td> <td>30</td> <td>10</td> <td>8</td> </tr> </tbody> </table>	Wages per day	61-70	71-80	81-90	91-100	101-110	111-120	No. of workers	5	15	20	30	10	8				
Wages per day	61-70	71-80	81-90	91-100	101-110	111-120													
No. of workers	5	15	20	30	10	8													
66	A well of diameter 2 m is dug 14 m deep. The earth taken out of it is spread evenly all around it to a width of 5 m to form an embankment. Find the height of the embankment.																		
67	Find the perimeter of the following shaded portion of the figure.																		



68	Draw a pair of tangents to a circle of radius 2 cm that are inclined to each other at an angle of 90° .
69	Two pillars of equal heights are on either side of a road, which is 100m wide. The angles of elevation of the top of the pillars are 60° and 30° at a point on the road between the pillars. Find the position of the point between the pillars. Also find the height of each pillar.
70	In fig. ABC is a right triangle right angled at B such that BC = 6 cm and AB = 8 cm. Find the radius of its incircle. 
71	Prove that $(1 + \cot \theta - \operatorname{cosec} \theta)(1 + \tan \theta + \sec \theta) = 2$
72	Find the value of k for which the area formed by the triangle with vertices A(4, 4), B(3, k) and C(3, 2) is 7 square units.
73	In figure, DB \perp BC, DE \perp AB and AC \perp BC. Prove that $\frac{BE}{DE} = \frac{AC}{BC}$ 
74	Find the sum of first 51 terms of an AP whose second and third terms are 14 and 18 respectively.
75	If the roots of the equation $a(b - c)x^2 + b(c - a)x + c(a - b) = 0$ are equal, show that $\frac{2}{b} = \frac{1}{a} + \frac{1}{c}$
76	Solve the following system of linear equations graphically: $2x + 3y = 4$; $3x - y = -5$. Shade the region bounded by the above lines and y-axis.
77	If α, β are zeros of quadratic polynomial $kx^2 + 4x + 4$, find the value of k such that $(\alpha + \beta)^2 - 2\alpha\beta = 24$
78	Prove that $5 - 2\sqrt{3}$ is an irrational number.
LA- LONG ANSWER TYPE QUESTIONS (4 Marks Each)	
79	If the HCF of 408 and 1032 is expressible in the form of $1032m - 408x5$, find m.

80	Obtain all zeroes of polynomial $f(x)=2x^4+x^3-14x^2-19x-6$ if two of its zeroes are -2 and -1 .														
81	The sum of a two - digit number and the number obtained by reversing the order of its digits is 165. If the digits differ by 3, find the number.														
82	Solve the quadratic equation :- $\frac{x-1}{x-2} - \frac{x-2}{x-3} = \frac{x-5}{x-6} - \frac{x-6}{x-7}$														
83	If p^{th} , q^{th} and r^{th} term of an A.P. are a , b , c respectively, then show that $a(q - r) + b(r - p) + c(p - q) = 0$.														
84	Find the area of quadrilateral whose vertices, taken in order, are A $(-3, 2)$, B $(5, 4)$, C $(7, -6)$ and D $(-5, -4)$.														
85	'If a line is drawn parallel to one side of a triangle to intersect the other sides in distinct points, then the other two sides are divided in the same ratio'. Prove this statement.														
86	(i) Evaluate without using trigonometric tables : $\frac{\sec\theta \cdot \operatorname{cosec}(90 - \theta) - \tan\theta \cdot \cot(90 - \theta) + (\sin^2 35 + \sin^2 55)}{\tan 10 \cdot \tan 20 \cdot \tan 45 \cdot \tan 70 \cdot \tan 80}$ (ii) If $\tan 3A = \cot(3A - 60^\circ)$, where $3A$ is an acute angle, find the value of A .														
87	An aeroplane flying horizontally 1000m above the ground, is observed at an angle of elevation 60° from a point on the ground. After a flight of 10 seconds, the angle of elevation at the point of observation changes to 30° . Find the speed of the plane in m/s.														
88	A circle touches the sides of a quadrilateral ABCD at P, Q, R, and S respectively. Show that the angles subtended at the centre by a pair of opposite sides of the quadrilateral are supplementary.														
89	ABCP is a quadrant of a circle of radius 14 cm. With AC as diameter, a semicircle is drawn. Find the area of the shaded portion (figure). <div style="text-align: center;">  </div>														
90	By melting a solid cylindrical metal, a few conical materials are to be made. If three times the radius of the cone is equal to twice the radius of the cylinder and the ratio of the height of the cylinder and the height of the cone is 4: 3, find the number of cones which can be made.														
91	Find the mean of following distribution with step - deviation method : <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td>Class</td> <td>10-15</td> <td>15-20</td> <td>20-25</td> <td>25-30</td> <td>30-35</td> <td>35-40</td> </tr> <tr> <td>Frequency</td> <td>5</td> <td>6</td> <td>8</td> <td>12</td> <td>6</td> <td>3</td> </tr> </tbody> </table>	Class	10-15	15-20	20-25	25-30	30-35	35-40	Frequency	5	6	8	12	6	3
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Frequency	5	6	8	12	6	3									
92	Draw an Ogive for the following frequency distribution by less than method and also find its median from the graph. <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td>Marks</td> <td>0-10</td> <td>10-20</td> <td>20-30</td> <td>30-40</td> <td>40-50</td> <td>50-60</td> </tr> <tr> <td>No. of students</td> <td>7</td> <td>10</td> <td>23</td> <td>51</td> <td>6</td> <td>3</td> </tr> </tbody> </table>	Marks	0-10	10-20	20-30	30-40	40-50	50-60	No. of students	7	10	23	51	6	3
Marks	0-10	10-20	20-30	30-40	40-50	50-60									
No. of students	7	10	23	51	6	3									
93	A card is drawn at random from a well shuffled deck of playing cards. Find the probability that the card drawn is (i) A card of spade or an ace (ii) A red king (iii) Neither a king nor a queen (iv) Either a king or a queen														