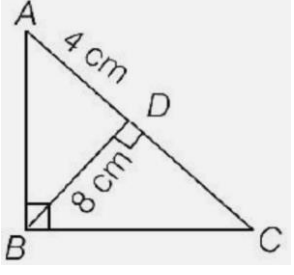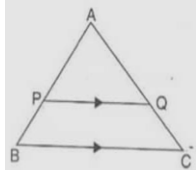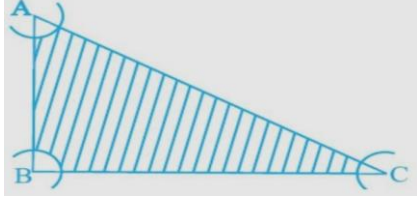| EMINENT TUTORIALS Class-x	MATHEMATICS PAPER	PAPER NO. 4

Opp. Deep Palace, Rania Distt. Sirsa

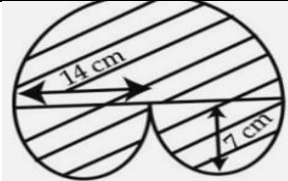**Time Allowed: 90 minutes**   **Maximum Marks: 40**

General Instructions:
1. The question paper contains three parts A, B and C
2. Section A consists of 20 questions of 1 mark each. Any 16 questions are to be attempted
3. Section B consists of 20 questions of 1 mark each. Any 16 questions are to be attempted
4 Section C consists of 10 questions based on two Case Studies. Attempt any 8 questions.
5. There is no negative marking.

Sr. No.	**SECTION-A** **Section A contains 20 questions of 1 marks each . Any 16 question are to be attempted .**	M
1.	An electronic device makes a beep after every 60 seconds. Another device makes a beep after every 62 seconds. They beeped together at 10 a.m. At what time will they beep together at the earliest (a) 10 : 31 a.m. (b) 10 : 30 a.m. (c) 10 : 32 a.m. (d) None	1
2.	Solution of $\frac{x+1}{2} + \frac{y-1}{3} = 8$; $\frac{x-1}{3} + \frac{y+1}{2} = 9$ is $(a)\ x = 6, y = 14$ $(b)\ x = 7, y = 13$ $(c)\ \ x = 5, y = 12$ $(d)\ x = 14, y = 16$	1
3.	What is the length of an altitude of an equilateral triangle of side 8 cm ? $(a)\ 2\sqrt{3}\ cm$ $(b)\ 3\sqrt{3}\ cm$ $(c)\ 4\sqrt{3}\ cm$ $(d)\ 5\sqrt{3}\ cm$	1
4.	In an equilateral $\Delta\ ABC\ AD \perp BC$, & $AD^2 = K\ BD^2$, $find\ k$ (a)3 $(b)\ \dfrac{3}{4}$ $(c)\ 7$ (d)4	1
5.	A bag contains blue, red and green balls. The probability of drawing red and blue balls are 0.6 and 0.03 respectively. The probability of drawing green ball is. $(a)\ 0.1$ $(b)\ 0.35$ $(c)\ 0.37$ (d)0.33	1
6.	In ΔABC, DE ∥ BC. $If\ AD\ =\ 2.5\ cm, AB\ =\ 7.5\ cm\ and\ EC\ =\ 6\ cm\ then\ AC\ =$ ___ $(a)\ 7\ cm$ $(b)\ 8\ cm$ $(c)\ 9\ cm$ $(d)\ 10\ cm$	1
7.	$\dfrac{1}{Cosec\theta - 1} - \dfrac{1}{Cosec\theta + 1} =$ _____ (a)2 $tan^2\theta$ (b)2 $Cot^2\theta$ (c)2 $Sec^2\theta$ (d) None	1
8.	Sum of two numbers is 120, their HCF is 24. How many such pairs of numbers exist? $(a)\ 2$ $(b)\ 3$ $(c)\ 1$ $(d)\ 5$	1
9.	If 2^{x-y} = 32 and 2^{x+y} = 128 then $x\ and\ y\ is$ ___ $(a)\ x = 6, y = 1$ $(b)\ x = 1, y = 6$ $(c)\ \ x = 5, y = 2$ $(d)\ x = 4, y = 1$	1
10.	If the points $A(1,2), B(4, q), C(p, 6)\ and\ D(3,5)$ are vertices of a parallelogram ABCD, find the values of $p\ and\ q$ $(a)\ p = -6, q = 3$ $(b)\ p = 6, q = -3$ $(c)\ \ p = 6, q = 3$ (d) None	1

11.	Decimal representation of $\frac{43}{2^3 \times 5^5}$ is	1
	(a) 0.00043 $\qquad$ (b) 0.00086 $\qquad$ (c) 0.00172 $\qquad$ (d) 0.00129	
12.	If $a^3 = 0.008$ then 'a' is__	1
	(a) Irrational $\qquad$ (b) Rational $\qquad$ (c) Whole Number $\qquad$ (d) Natural	
13.	In ΔABC, is right angled at C, then the value of $Cos(A+B)$ is :	1
	(a) 0 $\qquad$ (b) 1 $\qquad$ (c) $\frac{1}{2}$ $\qquad$ (d) $\frac{\sqrt{3}}{2}$	
14.	Given that $tan\theta = \frac{1}{\sqrt{3}}$, then the value of $\frac{Cosec^2\theta - Sec^2\theta}{Cosec^2\theta + Sec^2\theta}$ is	1
	(a) 3 $\qquad$ (b) $\frac{8}{3}$ $\qquad$ (c) $\frac{1}{2}$ $\qquad$ (d) $\frac{1}{3}$	
15.	The area of the region between two concentric circles of radius 5 cm and 3 cm respectively is ___	1
	(a) $16\pi\ cm^2$ $\qquad$ (b) $4\pi\ cm^2$ $\qquad$ (c) $34\pi\ cm^2$ $\qquad$ (d) None	
16.	Which is correct?	1
	(a) Two figures are similar if they have the same shape and same size.	
	(b) All similar triangles are congruent.	
	(c) Two polygons are similar if their corresponding sides are proportional.	
	(d) Two triangles are similar if their corresponding sides are proportional	
17.	If ΔABC is an equilateral triangle such that $AD \perp BC$, then AD^2 is ·	1
	(a) $\frac{3}{2}DC^2$ $\qquad$ (b) $2DC^2$ $\qquad$ (c) $3DC^2$ $\qquad$ (d) $4DC^2$	
18.	Given that $SinA = \frac{1}{2}$ and $CosB = \frac{1}{\sqrt{2}}$ then the value of $(A+B)$ is	1
	(a) 15° $\qquad$ (b) 30° $\qquad$ (c) 45° $\qquad$ (d) 75°	
19.	There are two examination halls, P and Q. If 10 students are sent from P to Q, then the number of students in each room is same. If 20 students are sent from Q to P, then the number of students in P is double of that in Q. The number of students in P and Q respectively are:	1
	(a) 60,40 $\qquad$ (b) 70,50 $\qquad$ (c) 80,60 $\qquad$ (d) 100,80	
20.	The probability of answering the question is $\frac{x}{16}$ and not answering the question is $\frac{1}{4}$, then the value of x is:	1
	(a) 12 $\qquad$ (b) 10 $\qquad$ (c) 16 $\qquad$ (d) 24	

SECTION-B

Section B contains 20 questions of 1 marks each . Any 16 question are to be attempted

21.	When 2^{256} is divided by 17 the remainder would be	1
	(a) 1 $\qquad$ (b) 14 $\qquad$ (c) 16 $\qquad$ (d) 3	
22.	A father's age is four times the sum of the ages of his two children. Five years hence his age will be $2\frac{1}{4}$ times the sum of the ages of children then. Father's present age is ___ :	1
	(a) 32 years $\qquad$ (b) 40 years $\qquad$ (c) 60 years $\qquad$ (d) 44 years	
23.	Evaluate $\frac{tan\ 45°}{Cosec\ 30°} + \frac{Sec\ 60°}{Cot\ 45°} + \frac{Sin90°}{2\ Cos\ 0°}$	1
	(a) 0 $\qquad$ (b) 1 $\qquad$ (c) 2 $\qquad$ (d) 3	
24.	The value of 'k' so that the system of equation $kx - y - 2 = 0$ and $6x - 2y - 3 = 0$ have no solution is :	1
	(a) $k = -4$ $\qquad$ (b) $k = 4$ $\qquad$ (c) $k = 3$ $\qquad$ (d) $k = -3$	

25.	The smallest number that leaves remainders 1,2 and 3 respectively when divided by 2,3 and 4 but completely divisible by 5 is (a) 65 (b) 75 (c) 55 (d) 45	1
26.	There are 1000 sealed envelopes in a box. 10 of them contain a cash prize of Rs 100 each, 100 of them contain a cash prize of Rs 50 each and 200 of them contain a cash prize of Rs 10 each and rest do not contain any cash prize. If they are well-shuffled and an envelope is picked up out, then the probability that is contains no cash prize is (a) 0.65 (b) 0.69 (c) 0.54 (d)0.57	1
27.	A bag contain 48 balls of which x are red, $2x$ are yellow and $3x$ are green. A ball is select at random, then the probability that ball is red or green is : (a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{2}{3}$ (d) $\frac{2}{5}$	1
28.	If $x\,Sin^3\theta + y\,Cos^3\theta = Sin\theta\,Cos\theta$ and $x\,Sin\theta = y\,Cos\theta$, then $x^2 + y^2$ is equal to: (a) 1 (b) 0 (c) -1 (d) 2	1
29.	A line joining $A(4,6)$ and $B\,(7,-6)$ is trisected at P and Q. If P is nearer to A then co-ordinates of P are (a) $x = 2, y = 5$ (b) $x = 5, y = 2$ (c) $x = 6, y = 0$ (d) $x = 2, y = 8$	1
30.	In the given figure, $\angle ABC = 90°$ and $BD \perp AC$.If $BD = 8\ cm$ and $AD = 4\ cm$, then the value of CD is (a) 8 cm (b) 12 cm (c) 14 cm (d) 16 cn	1
31.	The point on $y - axis$ which is equidistant From the point $P\ (6,5)$ and $Q\ (-4,3)$ is : (a) (0,9) (b) (9,0) (c) $(-9,0)$ (d) $(0,-9)$	1
32.	If $2Cos3\theta = 1, 0° < \theta < 90°$, then the value of θ is: (a) 10° (b) 30° (c) 20° (d) 15°	1
33.	The greatest number that divides 124, 165 and 288 leaving remainder 1 in each case is: (a) 23 (b) 31 (c) 41 (d) 54	1
34.	In the given figure, $PQ \parallel BC$. $\frac{AP}{PB} = 4$, then the value of $\frac{AQ}{AC}$ is (a) 5 (b) $\frac{4}{5}$ (c) 4 (d) $\frac{5}{4}$	1
35.	ABCD is a rectangle whose three vertices are $A(0,3), B(0,0)$ and $C\ (5,0)$. The length of its diagonal is…… (a) 5 units (b) 3 units (c) $\sqrt{34}$ units (d) 4 units	1
36.	With the vertices of A,B and C of a triangle ABC as centers, arc are drawn with the radii 5 cm each as shown in Fig. If $AB = 14cm, BC = 48\ cm$ and $CA = 50\ cm$, then find the area of shaded region. (use 3.14) (a) $39.25\ cm^2$ (b) $336\ cm^2$ (c) $296.75\ cm^2$ (d) None	1

37.	Find the area of the shaded region in the given figure. (a) $462\ cm^2$ (b) $452\ cm^2$ (c) $196\ cm^2$ (d) $252\ cm^2$ (14 cm, 7 cm)	1
38.	If α, β are zeroes of polynomial $ax^2 + bx + c$, then $\alpha - \beta$ is (a) $\dfrac{b}{a}$ (b) $\dfrac{bc}{a}$ (c) $\dfrac{\sqrt{b^2 - 4ac}}{a}$ (d) $\dfrac{\sqrt{b^2 + 4ac}}{a}$	1
39.	A circular park is surrounded by a road 21 m wide. If the radius of the park is 105 m, then the area of the road is (a) $1524.62\ cm^2$ (b) $15246\ cm^2$ (c) $15640.20\ cm^2$ (d) $None$	1
40.	A part of monthly expenses of a family is constant and the remaining varies with the price of wheat. When the rate of wheat is Rs. 250 a quintal, the total monthly expenses of the family are Rs. 1000 and when it is Rs. 240 a quintal, the total monthly expenses are Rs. 980. Find the total monthly expenses of the family when the cost of wheat is Rs.350 a quintal. (a) $Rs.\ 1400$ (b) $Rs.\ 1200$ (c) $Rs.\ 1000$ (d) $Rs.\ 800$	1

SECTION-C

Case study based questions:

Section C consists of 10 questions of 1 mark each. Any 8 questions are to be attempted.

	Case Study:-1 Application of Polynomials-Architectural Structures, Quadratic polynomial can be used to model the shape of many architectural structures in the world. Pershing field of Jersey city in US is one such structure. Based on the above information, answer the following questions.	
41.	If the Arch is represented by $10x^2 - x - 3$, then its zeros are (a) $\dfrac{1}{2}, -\dfrac{3}{2}$ (b) $-\dfrac{1}{2}, \dfrac{3}{5}$ (c) $-\dfrac{1}{2}, \dfrac{1}{3}$ (d) $-\dfrac{1}{3}, \dfrac{2}{3}$	1
42.	The zeros of the polynomial are the point where the graph (a)Intersect the x − axis (b)Intersect the y − axis (c)Intersect the either of the axis (d)Can'say	1
43.	The quadratic polynomial whose sum of zeros is 0 and product of zeros is 1 given by (a) $x^2 - x$ (b) $x^2 + x$ (c) $x^2 + 1$ (d) $x^2 - 1$	1
44.	Which of the following has $-\dfrac{1}{2}$ and 2 as their zeros ? (a) $6x^2 - 4x + 6$ (b) $3x^2 - x + 2$ (c) $2x^2 - 7x + 2$ (d) $2x^2 - 3x - 2$	1
45.	The product of zeros of the polynomial $\sqrt{3}x^2 - 14x - 8\sqrt{3}$ is (a) 4 (b) 6 (c) 8 (d) 10	1
	Q46-Q50 are based on Case Study -2	

Case Study:-2

Measuring Fuel output

A person is riding his bike on a straight road towards East from his college to city A and then to city B. At some point in between city A and city B, he suddenly realises that there is not enough petrol for the journey. Also, there is no petrol pump on the road between these two cities.

46.	The value of y is equal to _____ (a) 4 $\qquad$ (b) 5 $\qquad$ (c) 3 $\qquad$ (d) 2	1
47.	The value of x is equal to _____ (a) 4 $\qquad$ (b) 5 $\qquad$ (c) 8 $\qquad$ (d) 7	1
48.	If M is the mid point exactly in between city A and B, then the coordinates of M are $(a)(3,3)$ $\qquad$ $(b)(4,4)$ $\qquad$ $(c)(5,5)$ $\qquad$ $(d)(6,6)$	1
49.	The ratio in which A divide the line segment joining the points O and M is $(a)1:2$ $\qquad$ $(b)2:1$ $\qquad$ $(c)3:2$ $\qquad$ $(d)2:3$	1
50.	If the person analyse the petrol at the point M (the mid point of AB), then what should be his decision. (a)Should he travel back to college $\qquad$ (b) Should try his luck to move towards city B (c)Should travel back to city A $\qquad$ (d) None of these	1
	"Don't Cry Because It's Over, Smile Because it Happened"	

^^*^*^*^*^*^*^*^*^ ALL THE BEST *^*^*^*^*^*^*^*^*^*^*