Class – IX

Session -2021-22

TERM 1 (Set-2)

Subject- Mathematics (Standard) 041

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

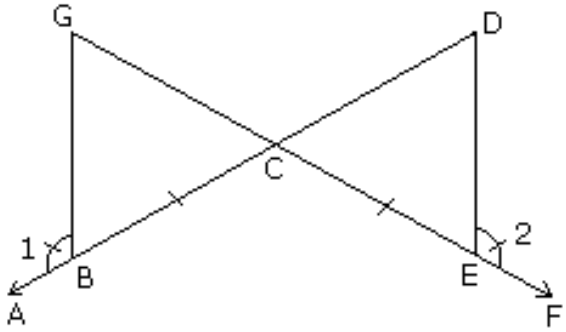
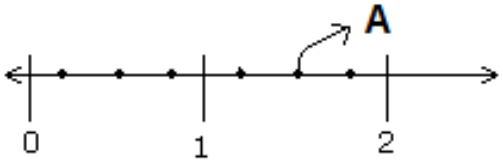
4 Section C consists of 10 questions based on two Case Studies. Attempt any 4 questions from each Case Studies.

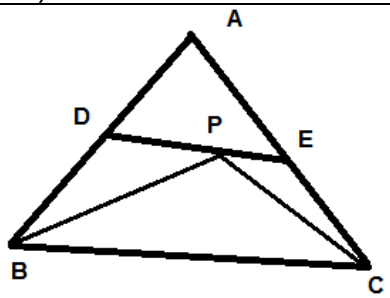
5. There is no negative marking.

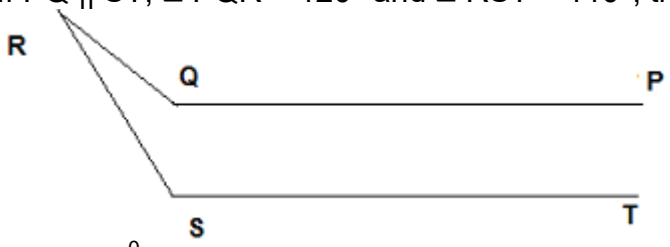
SECTION A

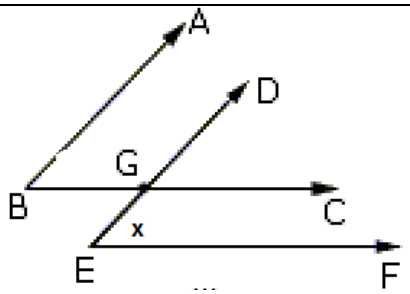
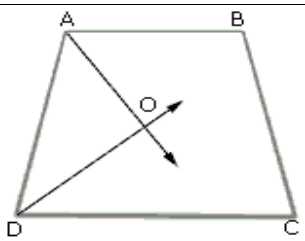
(Section A consists of 20 questions of 1 mark each. Any 16 questions are to be attempted)

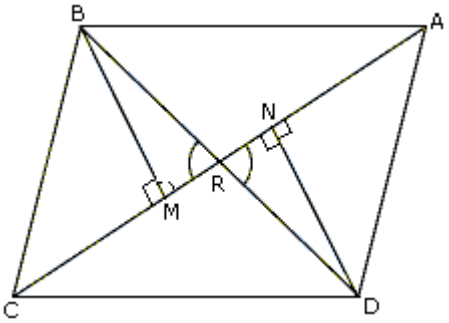
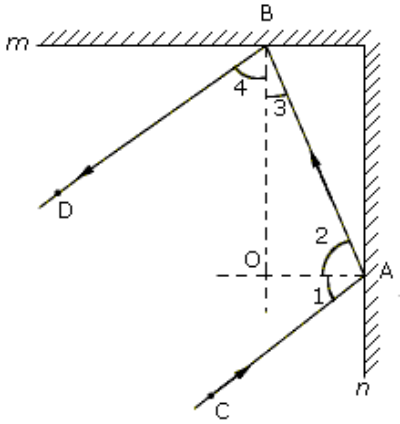
1.	The name of horizontal and the vertical lines drawn to determine the position of any point in the Cartesian plane? a) ordinate and abscissa b) abscissa and ordinate c) X axis and Abscissa d) Y-axis and ordinate	[1]
2.	A linear equation in two variables has a) infinitely many solutions. b) Only two solution c) It depends upon the coefficients of the variables d) None of these	[1]
3.	OQ is a line. Ray OR is perpendicular to line PQ. OS is another ray lying between rays OP and OR. If $\angle$ QOS = 125^0 and $\angle$ POS = 63^0 then the value of $\angle$ ROS is (a) 62^0 (b) 26^0	[1]

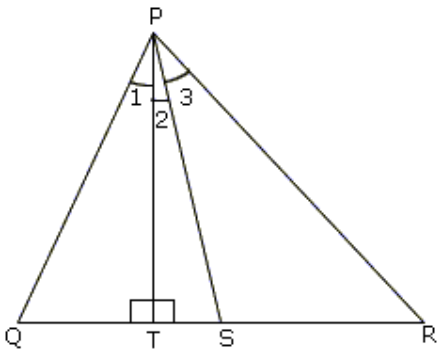
	(c) 31^0 (d) 13^0	
4.	The area of a regular hexagon is 600 $\sqrt{3}$ cm^2. Determine its perimeter. a) 100 cm b) 110 cm c) 120 cm d) 125 cm	[1]
5.	AB is a line segment and line l is its perpendicular bisector. If a point P lies on l, then a) AP=BP b) AB=AP=BP c) Can't say d) Insufficient of data	[1]
6.	If $2^x=3^y=6^z$ then $\frac{1}{x}+\frac{1}{y}=$ a) 2 b) 3 c) 6 d) $\frac{1}{z}$	[1]
7.	In the figure, BC = CE and $\angle 1 = \angle 2$. then  CD is equal to a) GC b) DE c) GB d) BC	[1]
8.	The number representing A on the number line is  	[1]

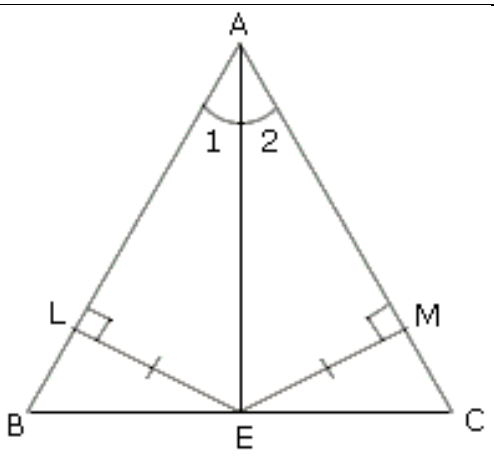
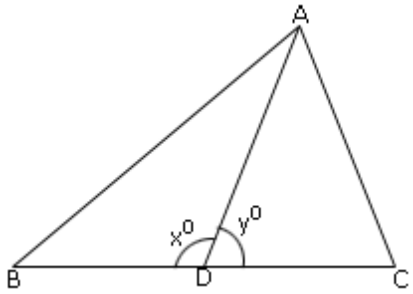
	a) 1.6 b) $1\frac{2}{3}$ c) $1\frac{1}{3}$ d) None of the above	
9.	The value of k, if x = 5, y = -2 is a solution of the equation 2x + 3y = k. a) -4 b) 4 c) 0 d) None of above	[1]
10.	Find the value of $x+\frac{1}{x}$ given x= $2+\sqrt{3}$ a) $2-\sqrt{3}$ b) $2\sqrt{3}$ c) 4 d) None of the above	[1]
11.	E and F are respectively the mid-points of equal sides AB and AC of Δ ABC then AEC angle is equal to a) $\angle$ABF b) $\angle$ACE c) $\angle$AFB d) None of the above	[1]
12.	Find the sides of an isosceles right triangle whose area is 50 cm^2. a) 5 cm b) 10 cm c) 15 cm d) 20 cm	[1]
13.	 If DE is parallel to BC , BP and CP are the angle bisectors of B and C respectively and BD=a cm and CE= b cm, then DE= a) a-b b) ab c) a+b	[1]

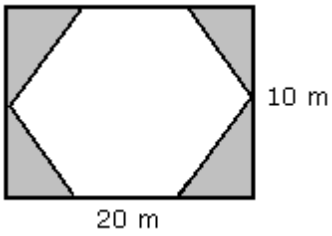
	d) none of these	
14.	Express $4.2\overline{34}$ in the form of $\frac{p}{q}$. a) $\frac{2097}{495}$ b) $\frac{4192}{999}$ c) $\frac{4294}{990}$ d) $\frac{2096}{495}$	[1]
15.	A plane is divided by a horizontal and a vertical line segment into four parts then these are a) equal to one an other b) unequal to one an other c) both (a) and (b) d) None of the above	[1]
16.	The decimal form of $\frac{327}{500}$ is a) 0.654 b) 0.645 c) 0.665 d) 0.655	[1]
17.	If PQ || ST, ∠ PQR = 120° and ∠ RST = 110°, the magnitude of ∠ QRS is  (a) 20^0 (b) 10^0 (c) 5^0 (d) None of these	[1]
18.	ΔABC is an isosceles triangle in which AB = AC. Side BA is produced to D such that AD = AB . The measure of ∠ BCD is a) 60^0 b) 90^0 c) 120^0 d) Can't say	[1]

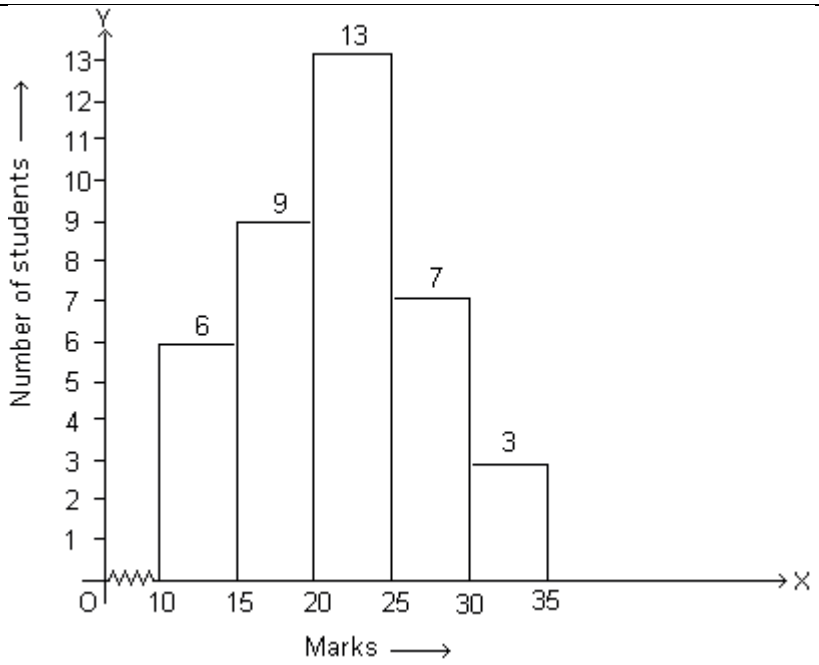
19.	 In the above figure, if AB is parallel to ED and BC is parallel EF, and ∠BGD=135^0. Find the value of ∠DEF. a) 135^0 b) 65^0 c) 45^0 d) None of the above	[1]
20.	 ABCD is a trapezium, AB // CD, if AO and DO are the angle bisectors of A and D respectively, then ∠AOD is a) 45^0 b) 90^0 c) 135^0 d) None of the above	[1]
	SECTION-B Section B consists of 20 questions of 1 mark each. Any 16 questions are to be attempted	[1]
21.	The scale that is taken to plot (70, 90)on the graph paper is a) 1 cm = 7 units b) 1 cm = 9 units c) 1cm = 10 units d) None of the above	[1]
22.	There is a triangular rose garden of dimensions 65 m, 70 m and 75 m. Find the cost of planting rose in it at the rate of Rs 75 per m^2. a) Rs.157500 b) Rs.150500 c) Rs.157000	[1]

	d) Rs.175500	
23.	In the given figure, both BM and DN are equal perpendiculars on the segment AC. Then  a) AC trisect BD b) AC bisects BD c) AC is equal to BD d) None of these	[1]
24.	 In the above fig. m and n are two mirrors placed perpendicular to each other. If the ∠CAO is 55^0, then the measure of ∠ 4 is a) 55^0 b) 45^0 c) 35^0 d) None of these	[1]
25.	An ant travels 5 cm in west direction and then 3 cm in north direction. Taking its starting point as the origin and east direction as positive x-axis, write its position as a co-ordinate on the graph. a) (5,3) b) (-5,3) c) (-5,-3)	[1]

	d) (5,-3)	
26.	 In the figure, PS is the bisector of $\angle$P and PT $\perp$ QR, the value of TPS is Q= 86^0 and R=63^0 then $\angle$TPS is a) 23^0 b) 46^0 c) 11.5^0 d) None of the above	[1]
27.	Find two integers between 3 and 4 a) 3.1 and 4.1 b) 3.2 and 3.9 c) 2.9 and 4.1 d) None of the above	[1]
28.	If both *a* and *b* are rational number, then *a* and *b* have $\frac{\sqrt{2}+\sqrt{3}}{3\sqrt{2}-2\sqrt{3}} = a - b\sqrt{6}$ a) exactly one pair of values b) infinitely many pair of values c) can't say d) None of the above	[1]
29.	E is the mid point on the side BC of a ΔABC, such that the perpendiculars from E on the sides AB and AC are equal. Then LAE is equal to a) LEB b) MEC c) MAE d) All of these	[1]

		
30.	On dividing $(2\sqrt{2}+3\sqrt{3})$ by $(\sqrt{2}+\sqrt{3})$ the quotient is a) $5+\sqrt{6}$ b) $5-\sqrt{6}$ c) $5\sqrt{6}$ d) $\frac{5}{\sqrt{6}}$	[1]
31.	Drawing room of Mr. Kapur has a triangular floor of dimensions 7 m, 8 m, 9 m respectively. He wants to cover it with marble tiles of size 20 cm × 25 cm. How many tiles does he need to purchase? a) 587 b) 557 c) 337 d) 537	[1]
32.	In the given figure, AB > AC and AD is the angle bisector of ∠A. then x^o  *a) greater than y^0* b) less than y^0 c) equal to y^0 d) None of these	[1]
33.	The true class limits of 16-20, if 21-25, 26-30, 31-35 are the class intervals in the distribution	[1]

	is (a) 16.5-20.5 (b) 15.5 – 20.5 (c) 16.5 – 21.5 (d) None of the above	
34.	Out of the followings, which one is the example of an inclusive class interval a) 0 -10, 10-20 and so on b) 1 -10, 11-20 and so on c) 0.5 – 10.5, 10.5 – 20.5 so on d) None of the above	[1]
35.	If four isosceles right angled triangles of side 5 m are removed from the corners of a rectangular plot 20 m ×10 m, then find the area of the remaining portion.  a) 160 m^2 b) 1750 m^2 c) 140 m^2 d) 150 m^2	[1]
36.	The class-marks of a continuous and uniform frequency distribution are 6, 10, 14, 18, 22, 26, 30. the class size of each class interval is a) 4 b) 8 c) 5 d) None of the above	[1]

37.	 In the above figure the class marks of 20-25 is a) 13 b) 12.5 c) 9 d) 7	[1]
38.	On simplifying $\frac{\sqrt{5}+\sqrt{3}}{\sqrt{180}+\sqrt{48}-\sqrt{45}-\sqrt{27}}$, the simplest form is a) $\frac{6+\sqrt{15}}{21}$ b) $\frac{15+\sqrt{6}}{21}$ c) $\frac{6-\sqrt{15}}{21}$ d) None of the above	[1]
39.	The coordinates of two points which lie on the opposite sides of the y-axis and equidistant from the Y- axis are a) (-3,4) and (-4,3) b) (-3,4) and (3,4) c) (-3,4) and (4,3) d) (-3,4) and (4,-3)	[1]
40.	if one acute angle is double the other, then the length of the hypotenuse is a) twice the length of the smallest side	[1]

b) thrice the length of the smallest side
c) greater than the other two sides
d) All of these

SECTION- C

Section C consists of 10 questions based on two Case Studies. Attempt any 4 questions from each Case Studies. [1]

CASE STUDY - I

100 plants each were planted in 100 schools during Van Mahotsava. After one month, the number of plants that survived were recorded as : [1]

95, 67,28, 32, 65, 65, 69, 33, 98, 96, 76, 42, 32, 38, 42, 40 ,40 ,69 ,95 ,92 ,75 ,83 ,76 ,83, 85, 62, 37 65, 63, 42, 89, 65, 73, 81, 49, 52, 64, 76, 83, 92, 93, 68, 52, 79, 81, 83, 59, 82, 75, 82, 86, 90, 44, 62, 31, 36, 38, 42, 39, 83, 87, 56, 58, 23, 35, 76, 83, 85, 30, 68, 69, 83, 86, 43, 45, 39, 83, 75, 66, 83, 92, 75, 89, 66, 91, 27, 88, 89, 93, 42, 53, 69, 90, 55, 66, 49, 52, 83, 34, 36,

To present such a large amount of data so that a reader can make sense of it easily, we condense it into groups like

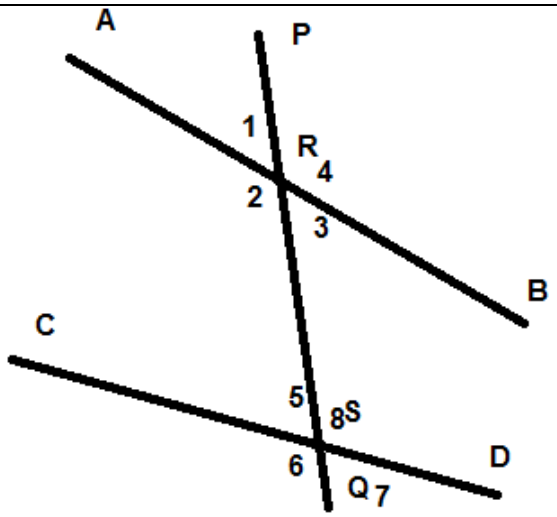
20-29, 30-39, . . ., 90-99.

Class Interval	Tally marks	Frequency
20 -29	///	3
30-39	𝍸 𝍸 ////	14
40-49	𝍸 𝍸 //	12
50-59	𝍸 ///	8
60-69	𝍸 𝍸 𝍸 ///	18
70-79	𝍸 𝍸	10
80-89	𝍸 𝍸 𝍸 𝍸 ///	23
90-99	𝍸 𝍸 //	12

41. Which type of group distribution is the above data is
a) Inclusive type
b) Exclusive type
c) Both (a) and (b)
d) None of the above

42. The true upper limit of 60 – 69 is [1]
a) 68.5
b) 69.5
c) 59.5
d) 60.5

43. The number of schools in which the survived trees is more than 50 is [1]
a) 71

	b) 63 c) 29 d) None of the above	
44.	The number of schools having maximum number of survival trees is a) 23 b) 12 c) Can't say d) None of the above	[1]
45.	The need of the Van Mahotsava is a) Increase the number of plants around us b) To maintain the balance in the atmosphere c) To increase the oxygen content in the atmosphere d) All of the above	[1]
	CASE STUDY - II	
	 Ram, Hari and Govind are playing together. Each one has a straight stick in his hand. They throw the stick to one place such that the sticks are fallen there in the shape as shown above.	
46.	Out of following pair of angles, which are alternate angles a) 2 and 3 b) 4 and 5 c) 2 and 8 d) All of the above	[1]
47.	Out of following pair of angles, which are corresponding angles a) 2 and 3 b) 4 and 8 c) 2 and 8	[1]

	d) All of the above	
48.	Out of following pair of angles, which are equals angles a) 1 and 3 b) 4 and 8 c) 2 and 8 d) All of the above	[1]
49.	Out of AB, CD and PQ which one is the transverse a) AB b) CD c) PQ d) All of the above	[1]
50.	Which of the followings pair of angles are equal in the above figure a) alternate angles b) corresponding angles c) vertically opposite angles d) all of the above	[1]