Marking Scheme
Class- X Session- 2021-22
TERM 1
Subject- Mathematics (Basic)

Q. N.	CORRECT OPTION	HINTS/SOLUTION
1	(d)	P(perfect Square)=5/45=1/9
2	(c)	length of the arc= Θ /360° (2πr)=(60°/360°)x2x(22/7)x21=22cm
3	(a)	TanΘ = sinΘ/cosΘ = sinΘxsecΘ = xy
4	(d)	The lines are parallel hence No solution
5	(b)	P(even composite no) =2/6=1/3
6	(a)	Let the cost of one chair=Rs. x Let the cost of one table=Rs. y 8x+5y=10500 5x+3y=6450 Solving the above equations Cost of each chair= x= Rs. 750
7	(c)	CosΘ=I-cos$^2\Theta$=sin$^2\Theta$ Therefore Sin$^2\Theta$+sin$^4\Theta$=cosΘ+cos$^2\Theta$=1
8	(a)	Terminating
9	(c)	2^3x3^3
10	(c)	1st No. x 2nd No. = HCF X LCM 12960=18 X LCM LCM=720
11	(c)	AE/AC=DE/BC=a/a+b=x/y X=ay/(a+b)
12	(d)	(2x4+1x1)/3 , (2x6+1x3)/3 =(3,5)
13	(c)	3825=3^2x5^2x17
14	(d)	AB^2=AD^2+BD^2 AB=5cm AC^2=AB^2+CB^2 AC=13 cm Cot θ=CB/AB=12/5
15	(a)	x+y=12 X-y=8 Solving the above equations X=10,y=2
16	(d)	AB^2=AC^2+AC^2 =AC^2+BC^2 Hence, angle C=90°
17	(d)	Let the zeroes be a and b Then, a=-1 , a+b=-(-7)/1 Hence, b=7+1=8
18	(a)	P(same no on each die)=6/36=1/6
19	(b)	(2,6)=((3p-2)/2, (4+2q)/2) 3p-2=4, 4+2q=12 P=2, q = 4 hence p+q = 6
20	(c)	147/120= 49/40=49/2^3x5

		Three decimal places
21	(d)	Perimeter of protractor=Circumference of semi-circle + 2 x radius $=\pi r+2r$
22	(c)	$0\le P(E)\le1$
23	(b)	CD/BD=BD/AD BD^2=CDXAD=6X3 BD=3√2 cm
24	(b)	3/6=5/k ⇒K=10
25	(d)	C1/C2=2πr/2πR 2π/4π=2πr/2πR r/R=1/2 $A1/A2=\pi r^2/\pi R^2=(r/R)^2=(1/2)2=1/4$ A2=4A1
26	(d)	sinθ=a/b $H^2=P^2+B^2$ $b^2=a^2+B^2$ $B=\sqrt{(b^2-a^2)}$ $tan\theta=P/B=a/\sqrt{(b^2-a^2)}$
27	(a)	$x+y=2\sin^2\theta+2\cos^2\theta+1$ $=2(\sin^2\theta+\cos^2\theta)+1$ =2+1=3

28	(b)	2πr- r=37
		    r{2x(22/7)-1}=37
		     r=37x7/37
		     r=7
		circumference=2x(22/7)x7=44cm

29	(c)	1 = 1 2 = 2 × 1 3 = 3 × 1 4 = 2 × 2 5 = 5 × 1 6 = 2 × 3 7 = 7 × 1 8 = 2 × 2 × 2 9 = 3 × 3 10 = 2 × 5 So, LCM of these numbers = 1 × 2 × 2 × 2 × 3 × 3 × 5 × 7 = 2520 Hence, least number divisible by all the numbers from 1 to 10 is 2520
30	(c)	LCM 0f 4,7,14=28 Bells will they ring together again at 6:28 AM
31	(b)	Let age of Father=x Years Let age of son = y years x+y = 65 2(x-y)=50 Solving the above equations Father's Age =x = 45 years

32	(c)	$(tan\theta cosec\theta)^2-(sin\theta sec\theta)^2$
		    $=\tan^2\theta cosec^2\theta-\sin^2\theta sec^2\theta$
		    $=(\sin^2\theta/\cos^2\theta)x1/\sin^2\theta - \sin^2\theta x1/\cos^2\theta$
		     $=(1-\sin^2\theta)/\cos^2\theta=\cos^2\theta/\cos^2\theta$ =1

33	(d)	$A1/A2=(P1/P2)^2=(26/39)^2$

		A1/A2=(2/3)²=4/9

34	(a)	Let no of Cars=x
		    Let no of motorcycles=y
		    X+y=20
		    4x+2y=56
		Solving the above equations
		No of cars=x=8

35	(c)	H²=P²+B² H²=15²+8² H=17m
36	(c)	(altitude)²=(side)²-(side/2)² =8²-4²= 64-16 =48 Altitude=4√3 cm
37	(d)	P=3/9=1/3
38	(b)	Θ/360˚xπr²=1/6x πr² Θ=60˚
39	(d)	Height of Vertical stick/Shadow of vertical stick=height of tower/shadow of tower 20/10=Height of tower/50 Height of tower=100 m
40	(d)	37x+43y=123 ____(1) 43x+37y=117 ____(2) Adding (1) and (2) X+y=3 _____(3) Subtracting (2) from (1) -x+y=1.............(4) Adding (3) and (4), 2y=4 y=2 ⇒ x=1 ∴ solution is x=1 and y=2

41	(b)	AB=√{(4-1)²+(0-4)²}
		        =√(3²+4²)
		    AB=5 units

42	(a)	(x-7)²+(y-1)²=(x-3)²+(y-5)² X²+49-14x+y²+1-2y=x²+9-6x+y²+25-10y Simplifying x-y=2
43	(a)	3x + y − 9 = 0 Let R divide the line in ratio k:1 R(2k+1/k+1, 7k+3/k+1) 3(2k+1/k+1)+(7k+3/k+1)-9=0 4k-3=0 K=3/4 3 : 4
44	(c)	Distance of M from X-axis=√(2-2)²+(0-3)²=√9=3units
45	(b)	((1+3)/2 , (4+5)/2) = (4/2, 9/2) = (2, 9/2)
46	(c)	Cubic
47	(d)	Four Zeroes as the curve intersects the x-axis at 4 points
48	(d)	p≠0
49	(d)	3 Zeroes as the curve intersects the x-axis at 3 points
50	(c)	-3,-1,2