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)	$Cos\Theta=I-cos^2\Theta=sin^2\Theta$ Therefore $Sin^2\Theta+sin^4\Theta=cos\Theta+cos^2\Theta=1$
8	(a)	Terminating
9	(c)	2^3x3^3
10	(c)	1^{st} No. x 2^{nd} 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)	$147/120= 49/40=49/2^3x5$

		=πr+2r
22	(c)	0≤ P(E) ≤1
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=√(b^2-a^2) tanΘ=P/B=a/√(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)	$(\tan\Theta\operatorname{cosec}\Theta)^2-(\sin\Theta\sec\Theta)^2$ $=\tan^2\Theta\operatorname{cosec}^2\Theta-\sin^2\Theta\sec^2\Theta$ $=(\sin^2\Theta/\cos^2\Theta)x1/\sin^2\Theta-\sin^2\Theta x1/\cos^2\Theta$ $=(1-\sin^2\Theta)/\cos^2\Theta=\cos^2\Theta/\cos^2\Theta$ =1
33	(d)	$A1/A2=(P1/P2)^2=(26/39)^2$

		Let no of motorcycles=y X+y=20 4x+2y=56 Solving the above equations No of cars=x=8
35	(c)	$H^2=P^2+B^2$ $H^2=15^2+8^2$ H=17m
36	(c)	$(altitude)^2=(side)^2-(side/2)^2$ $=8^2-4^2= 64-16 =48$ Altitude=4√3 cm
37	(d)	P=3/9=1/3
38	(b)	$\Theta/360^\circ x\pi r^2=1/6x\ \pi r^2$ $\Theta=60^\circ$
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)	$AB=\sqrt{\{(4-1)^2+(0-4)^2\}}$ $=\sqrt{(3^2+4^2)}$ AB=5 units
42	(a)	$(x-7)^2+(y-1)^2=(x-3)^2+(y-5)^2$ $X^2+49-14x+y^2+1-2y=x^2+9-6x+y^2+25-10y$ 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=$\sqrt{(2-2)^2+(0-3)^2}=\sqrt{9}$=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