KARNATAKA SCHOOL EXAMINATION AND ASSESSMENT BOARD			
II PUC EXAM -1 MARCH 2025 **SCHEME OF EVALUATION**			
Subject: **75- BASIC MATHEMATICS**			**Max Marks :80**
QN. NO.			MARKS
I	**PART - A**		
1.	d) $\begin{bmatrix} 6 & 4 \\ 4 & 8 \end{bmatrix}$		1
2.	a) 15		1
3.	c) $\frac{1}{4}$		1
4.	d) $\sim q \rightarrow \sim p$		1
5.	b) 3: 7		1
6.	a) $\frac{\sqrt{3}}{2}$		1
7.	d) y = -2		1
8.	b) $5e^x - \frac{1}{x}$		1
9.	b) $\frac{\log(7x+8)}{7}$		1
10.	d) $\frac{x^6}{6} + c$		1
II			
11.	a)	iv 1	1
	b)	i 7	1
	c)	Vi 9	1
	d)	ii $\frac{\sqrt{3}-1}{2\sqrt{2}}$	1
	e)	iii 2	1
III			
12.	3		1
13.	35		1
14.	12		1
15.	16		1
16.	1		1

IV	PART B	
17.	$2A = \begin{bmatrix} 2 & 0 \\ -1 & 3 \end{bmatrix} - \begin{bmatrix} 1 & -1 \\ 3 & 0 \end{bmatrix} = \begin{bmatrix} 1 & 1 \\ -4 & 3 \end{bmatrix}$	1
	$A = \begin{bmatrix} \frac{1}{2} & \frac{1}{2} \\ -2 & \frac{3}{2} \end{bmatrix}$	1
18.	Total selection = $^9C_5$	1
	=126	1
19.	$P(A \cap B) = 0$	1
	$P(A \cup B) = P(A) + P(B) = \frac{19}{35}$	1
20.	a : b : c 3 : 4 x2 8 : 15	1
	6 : 8 : 15 = a : b: c	1
21.	TD=1200	1
	F=30000	1
22.	Equation is of form $y^2 = -4ax$ $a = 4$	1
	Equation of parabola $y^2 = -16x$	1
23.	Taking log logy = x logx	1
	Diff and getting answer $\frac{dy}{dx} = x^x(1 + \log x)$	1
24.	$MC = 3q^2 - 6q + 15$	1
	FC = 27	1
25.	$A = \int_0^1 ydx = \int_0^1 x^2 dx$	1
	= $\left[\frac{x^3}{3}\right]_0^1 = \frac{1}{3} sq\ units$	1
V	**PART C**	
26.	$\Delta = -7$ $\Delta_1 = -7$ $\Delta_2 = 7$	2
	x = 1 y = -1	1
27.	Total words = $\frac{11!}{3!3!2!2!}$	1
	a) $\frac{4!}{3!}$	1
	b) $\frac{9!}{3!2!2!}$	1

28.	Carpenters Rs Days hours	
	3 360 6 9	1
	8 ? 12 6	
	$= 360 \times \frac{8}{3} \times \frac{12}{6} \times \frac{6}{9}$	1
	= ₹1280	1
29.	TD = ₹1200	1
	BD =₹ 1224	1
	F = ₹61,200	1
30.	FV MV I	
	100 108 7.5	
	6000 ? ?	
	MV =6480	1
	Income=450	1
	FV MV I	
	100 ? 9	1
	6480 720 market value = ₹81	
31.	MP= x Tax =0.1x	1
	Total amount paid : 1.1x=13530	1
	X= 12,300	1
32.	$V = a^3$ $A = 6a^2$	
	$\frac{dv}{dt} = 3a^2 \frac{da}{dt}$ $\frac{dA}{dt} = 12a \frac{da}{dt}$	1
	$\frac{dv}{dt} = 1800cm^3/min$ $\frac{dA}{dt} = 720cm^2/min$	2
33.	$\frac{x}{(x-1)(x-2)} = \frac{A}{x-1} + \frac{B}{x-2}$	
	A= -1 B=2	2
	$\int \frac{x}{(x-1)(x-2)} dx = -\log(x-1) + 2\log(x-2) + c$	1
34.	$\int_1^2 x + e^x + 2 \; dx = \left[\frac{x^2}{2} + e^x + 2x\right]_1^2$	1
	$= [2+e^2+4]-[\frac{1}{2} + e + 2]$	1
	$= e^2 - e + \frac{7}{2}$	1

VI **PART D**

35. $|A| = -12$ — 1

$Adj\ A = \begin{bmatrix} -7 & 5 & -3 \\ -1 & -1 & 3 \\ -11 & 13 & -3 \end{bmatrix}$ — 2

$X = A^{-1}B$

$= \frac{1}{-12}\begin{bmatrix} -7 & 5 & -3 \\ -1 & -1 & 3 \\ -11 & 13 & -3 \end{bmatrix}\begin{bmatrix} 6 \\ 3 \\ -1 \end{bmatrix} = \frac{1}{-12}\begin{bmatrix} -24 \\ -12 \\ -24 \end{bmatrix}$ — 1

x = 2 y= 1 z= 2 — 1

36. $\frac{9}{(x+1)(x+2)^2} = \frac{A}{x+1} + \frac{B}{x+2} + \frac{C}{(x+2)^2}$ — 1

A = 9 B = -9 C = -9 — 3

Conclusion — 1

37.

P	q	~q	$p \wedge \sim q$	$(p \wedge \sim q) \vee q$	$p \vee q$
T	T	F	F	T	T
T	F	T	T	T	T
F	T	F	F	T	T
F	F	T	F	F	F
I Mark			1 Mark	1 Mark	1 Mark

4

Conclusion: from column V and VI $(p \wedge \sim q) \vee q \equiv p \vee q$ — 1

38.

No of units	Total units	Average time	Total time
1	1	1000	1000
1	2	800	1600
2	4	640	2560
4	8	512	4096

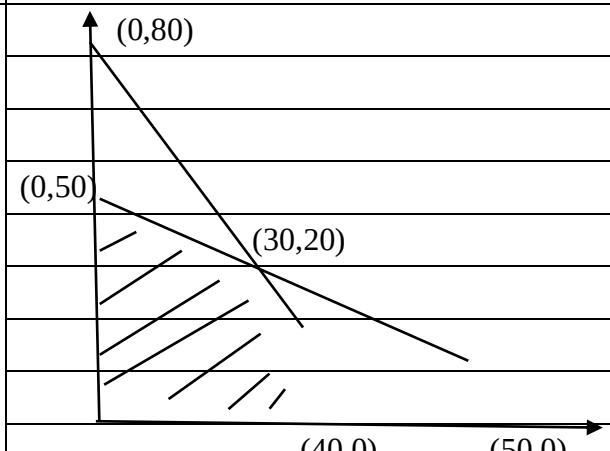
3

Total Time = 4096 hours — 1

Total Cost = ₹163840 — 1

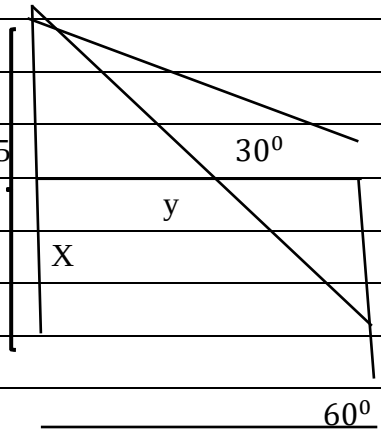
Y

39.



3

	Corner Points	Z=10500x+9000y	2
	(0,0)	0	
	(0,50)	450000	
	(30,20)	495000	
	(40,0)	420000	
	Maximum value of Z is 495000 at (30,20)		
40.	$\frac{(cos7x - Cosx) - (Cos5x - Cos3x)}{(Sin7x + sinx) - (Sin5x + sin3x)}$		1
	$=\frac{-2sin4xsin3x+2sin4xsinx}{2sin4xcos3x-2sin4xcosx}$		1
	$= \frac{-2sin4x(sin3x - sinx)}{2sin4x(Cos3x - Cosx)}$		1
	$= \frac{-2cos2xsinx}{-2sin2xsinx}$		1
	$= \frac{cos2x}{sin2x} = cot2x$		1
41.	$y = x + \sqrt{x^2 - 1}$		
	$y_1 = 1 + \frac{1}{2\sqrt{x^2 - 1}} \ .2x$		1
	$y_1 = \frac{\sqrt{x^2 - 1} + x}{\sqrt{x^2 - 1}}$		1
	$\sqrt{x^2 - 1}y_1 = y$		1
	$(x^2 - 1){y_1}^2 = y^2$		
	$(x^2 - 1)2y_1y_2 + {y_1}^2 2x = 2yy_1$		1
	$(x^2 - 1)y_2 + xy_1 = y$		1
VI	**PART E**		
42.	Theorem Case 1		2
	Case 2		2
	Case 3		2
	OR		
	Writing equations (any 3 points)		
	(2,-4) g - 2f = -5		1
	(3,-1) 6g – 2f = -10		
	(0,0) C = 0		1
	g = -1		1
	f = 2		1
	Equation of circle $x^2 + y^2 - 2x + 4y = 0$		1
	Sub 4th point (3,-3) 9+9-6-12=0 , hence points are concyclic		1

43.		
		1
	y	
	$tan30^0 = \frac{75-x}{y}$, $\frac{1}{\sqrt{3}} = \frac{75-x}{y}$	1
	$tan60^0 = \frac{75}{y}$, y $= \frac{75}{\sqrt{3}}$	1
	X=50	1
	OR	
	$(1.1)^4 = (1+0.1)^4$	1
	$= 1^4 + {}^4C_1\ (1)^3(0.1) + {}^4C_2\ (1)^2(0.1)^2 + {}^4C_3\ (1)^1(0.1)^3 + {}^4C_4\ (0.1)^4$	1
	=1+0.4+0.6+0.004+0.0001	1
	=1.4641	1
	PART F	
39	(Only for visually challenged students)	
	Maximize Z= 6x+8y	2
	$4x + 2y \leq 20$	1
	$2x + 5y \leq 24$	1
	$X,y \geq 0$	1