

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 $\log y = x \log x$	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.	$A = \int_0^1 y dx = \int_0^1 x^2 dx$	1
	$= \left[\frac{x^3}{3} \right]_0^1 = \frac{1}{3} sq \text{ units}$	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	1
	3	360	6	9	
	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		1
	100	?	9		
6480	720	market value = ₹81			
31.	MP = x Tax = 0.1x				1
	Total amount paid : $1.1x = 13530$				1
	X = 12,300				1
32.	$V = a^3$			$A = 6a^2$	1
	$\frac{dv}{dt} = 3a^2 \frac{da}{dt}$			$\frac{dA}{dt} = 12a \frac{da}{dt}$	
	$\frac{dv}{dt} = 1800 \text{ cm}^3 / \text{min}$			$\frac{dA}{dt} = 720 \text{ cm}^2 / \text{min}$	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
	$= [2 + e^2 + 4] - \left[\frac{1}{2} + e + 2 \right]$				1
	$= e^2 - e + \frac{7}{2}$				1

	Corner Points	$Z=10500x+9000y$
	(0,0)	0
	(0,50)	450000
	(30,20)	495000
	(40,0)	420000
	Maximum value of Z is 495000 at (30,20)	
40.	$\frac{(\cos 7x - \cos x) - (\cos 5x - \cos 3x)}{(\sin 7x + \sin x) - (\sin 5x + \sin 3x)}$	1
	$= \frac{-2\sin 4x \sin 3x + 2\sin 4x \sin x}{2\sin 4x \cos 3x - 2\sin 4x \cos x}$	1
	$= \frac{-2\sin 4x(\sin 3x - \sin x)}{2\sin 4x(\cos 3x - \cos x)}$	1
	$= \frac{-2\cos 2x \sin x}{-2\sin 2x \sin x}$	1
	$= \frac{\cos 2x}{\sin 2x} = \cot 2x$	1
41.	$y = x + \sqrt{x^2 - 1}$	
	$y_1 = 1 + \frac{1}{2\sqrt{x^2 - 1}} \cdot 2x$	1
	$y_1 = \frac{\sqrt{x^2 - 1} + x}{\sqrt{x^2 - 1}}$	1
	$\sqrt{x^2 - 1} y_1 = y$	1
	$(x^2 - 1)y_1^2 = y^2$	
	$(x^2 - 1)2y_1 y_2 + y_1^2 2x = 2y y_1$	1
	$(x^2 - 1)y_2 + x y_1 = y$	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 4 th point (3,-3) $9+9-6-12=0$, hence 4 points are concyclic	1

43.		
		1
	$\tan 30^\circ = \frac{75-x}{y}, \quad \frac{1}{\sqrt{3}} = \frac{75-x}{y}$	1
	$\tan 60^\circ = \frac{75}{y}, \quad y = \frac{75}{\sqrt{3}}$	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 ≤ 20	1
	2x + 5y ≤ 24	1
	X,y ≥ 0	1