

Government of Karnataka

Karnataka Secondary Education Examination Board

Question Paper

ANSWER KEY

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

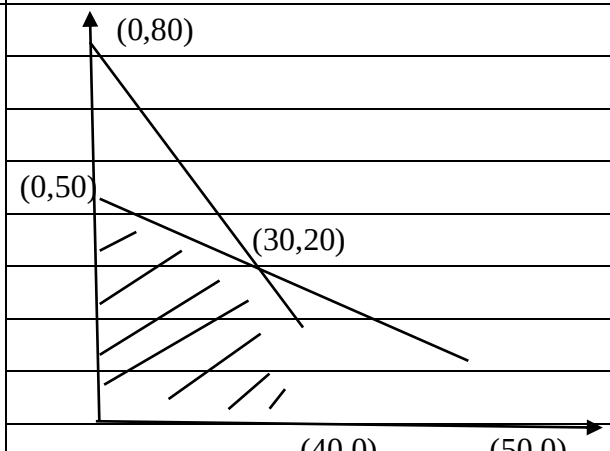
3

Total Time = 4096 hours — 1

Total Cost = ₹163840 — 1

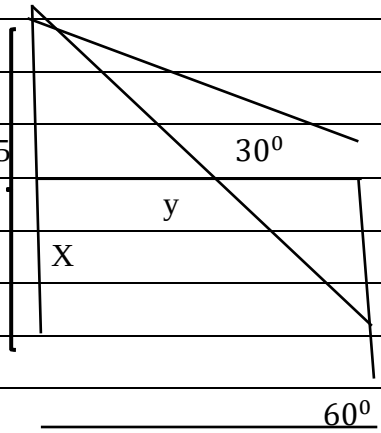
Y

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

AglaSem Earn While You Learn Program!

Share your recent question papers with us and get paid!
अपने हाल के प्रश्न पत्र हमें भेजें और कमाएँ!

To participate, email us with the following details:
भाग लेने के लिए हमें निम्न विवरण के साथ ईमेल करें:

- Your Name
- Your Class
- Your Board
- Details of the Question Papers you have
  आपके पास उपलब्ध प्रश्न पत्रों का विवरण

Our team will reach out to you with the next steps.
हमारी टीम आगे की प्रक्रिया के लिए आपसे संपर्क करेगी।

Email: **support@aglasem.com**

Study Materials

aglasem.com

Model Papers

Sample Papers

Half Yearly Sample Papers

Important Resources

Periodic Table

Writing Skills / Formats

Maps of India / World

Notes

- [ ] Class 6 Notes
- [ ] Class 7 Notes
- [ ] Class 8 Notes
- [ ] Class 9 Notes
- [ ] Class 10 Notes
- [ ] Class 11 Notes
- [ ] Class 12 Notes

Books and Solutions

NCERT Books

NCERT Book Solutions

HC Verma Chapter Wise Solutions

RD Sharma Solutions

CGBSE Solutions