Reg. No.				

G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS), KOVILPATTI - 628 502.



UG DEGREE END SEMESTER EXAMINATIONS - APRIL 2025.

(For those admitted in June 2023 and later)

PROGRAMME AND BRANCH: B.C.A.

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
III	PART – III	ELECTIVE GENERIC-3	U23CA3A3	DISCRETE MATHEMATICS

Date	& Sessi	on: 26	.04.2025 / AN Time: 3 hou	s Maxim	num: 75 Marks	
Course Outcome	Bloom's K-level	Q. No.	SECTION - A (10 X 1 = 10 Marks) Answer ALL Questions.			
CO1	K1	1.	If a relation is reflexive, then all the must be	liagonal entries in the re		
			a) 0 b) 1		d) -1	
CO1	K2	2.	,	e then the relation is said to Compatibility relation Partial order relation	be	
CO2	K1	3.	The Composition of two function is a) Commutative b) Associative		None of the above	
CO2	K2	4.	which one is known as an injection? a) many-one b) one-one		f the mentioned	
CO3	K1	5.	,	d) -	\rightarrow	
CO3	K2	6.	P v Q is logically equivalent to a) ~q->~p b) q->p		~p->q	
CO4	K1	7.	Matrix of order m by n is written as a) n × m b) m × n		m / n	
CO4	K2	8.	Which of the following property of many a) Multiplication is not commutative b) Multiplication is associative c) Multiplication is distributive over d) All of the mentioned	in general	rrect?	
CO5	K1	9.	The number of edges in a regular gr a) 347 b) 230	uph of degree 46 and 8 vo c) 184	ertices is d) 186	
CO5	K2	10.	, , ,	l node is called a Complete graph JnDirected graph		
Course Outcome	Bloom's K-level	Q. No.		(5 X 5 = 25 Marks) s choosing either (a) or	· (b)	
CO1	КЗ	11a.	Define Relation and explain the bina	ry Relation with example (OR)	2.	
CO1	КЗ	11b.	Consider the Relation R on A = {4,5,6} R= {(4,5),(5,5),(5,6),(6,7),(7,4) and (7,6)}	,7} defined by	losure of R.	

CO2	КЗ	12a.	Write about the Addition and Multiplication of Functions. (OR)		
CO2	КЗ	12b.	Let f:R->R be defined by $f(x) = x+1$ and g: R->R be defined as		
			$g(x) = 2x^2 + 3$. Find f o g and g of. Is fog=gof?		
CO3	K4	13a.	Tabulate the truth table for five basic Connectives. (OR)		
CO3	K4	13b.	Examine that the proposition $pV\sim(p\land q)$ is a tautology.		
CO4	K4	14a.	Define the Matrix and explain with example. (OR)		
CO4	K4	14b.	Compute the determinant of 3*3 Matrix.		
			$ \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix} $		
CO5	K5	15a.	Define Graphs and explain the Basic terminologies. (OR)		
CO5	K5	15b.	Prove that the maximum number of edges in a graph with n vertices is $2n(n-1)$.		

Course Outcome	Bloom's K-level	Q. No.	SECTION - C (5 X 8 = 40 Marks) Answer ALL Questions choosing either (a) or (b)		
CO1	K3	16a.	Explain the following with suitable examples (i) Classification of Relations (ii) Composition of Relations (iii) Inverse of a Relations		
CO1	КЗ	16b.	(OR) Determine the representation of Relations on a set.		
CO2	K4	17a.	Analyse the types of function with example. (OR)		
CO2	K4	17b.	Explain the following with suitable examples. (i) Composition of Functions (ii) Inverse of a Functions		
CO3	K4	18a.	List the set of Logical Operators and explain it. (OR)		
CO3	K4	18b.	Construct the truth table for each of the following compound propositions. (i) (p\q) \(\nabla (p\rangler)) \(\nabla (p\rangler)) \(\nabla (p\rangler)) \(\nabla (p\rangle q)) \(\nabla (p\rangle q)) \\ (iii) \(p\lambda (q\rangle r))		
CO4	K5	19a.	Briefly explain about types of matrices with examples.		
CO4	K5	19b.	Prove that $(AB)^{T} = B^{T}A^{T}$ $A = \begin{pmatrix} 1 & 2 & -1 \\ 3 & 0 & 2 \\ 4 & 5 & 0 \end{pmatrix} B = \begin{pmatrix} 1 & 0 & 0 \\ 2 & 1 & 0 \\ 0 & 1 & 3 \end{pmatrix}$		
CO5	K5	20a.	Briefly explain about Types of Graphs. (OR)		
CO5	K5	20b.	Briefly explain about Operations on Graph.		