SC

[93] SEAT No.

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SARDAR PATEL UNIVERSITY M.Sc.(Information Technology) SEMESTER-I

External Examination (NC)

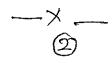
PS01CINT21- Introduction to Theoretical Computer Science 19th March ,2019, Tyesday

Time:1	.0:00am	to 1.	$\mathbf{mq00}$
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Marks:70

Q1	1		e answers of following Multipl		-	[8]	
	1		_		transitive is known asrelation.		
		A	reflexive	В	Equivalence		
		C	Unbounded		None of these		
	2		$t A = \{a, b, c\}$ is an example of				
		A	finite		Uncountable		
	_	C	Infinite		Uncountable and Infinite		
	3			ccurred	in Mango sales during November to		
			ruary is called variation.	Б			
		A	Trend	В			
		С.	Cyclic	D	Irregular		
	4		a=a is	***			
	•		Commutative property	В	Absorption property		
			Idempotent property		Associative property		
	5		is a set of statistical obser	vations	arranged in chronological order.		
		Α	Statistical series	В	Time series		
		C	Observations	D	None of these		
	6	Incr	ease the price of vegetable durin	g heavy	rain is known as variation.		
		Α	irregular	В	Seasonal		
		С	Trend	D	Cyclic		
	7	Tota	al number of edges in a complete	graph H	ζ5 is .		
		Α	4	В	6		
		С	8	D	10		
	8	R be	e a relation defined on a set A, th	en R is	if a R a holds all a belongs to		
		A i.e. {a, a}.					
		Α		В	Symmetric Relation		
		С	Asymmetric Relation		Relative Relation		
			,				
Q2		Do a	as directed (Any 7)			[14]	
`	1		struct a Circuit diagram for: (1)	ζΎ+XΥ'	(2) (XY'+X'Y)Z		
	2		ne countable infinite sets? Give o				
	3		ne tractable and intractable prol				
	4				e down the time complexity of bubble		
			algorithm.		1 3		
5	5	With the help of truth table prove that x v (y v z)=(x v y) v z.					
6		Explain rule of sum using with examples.					
	7	-	te down all the formulas for 2 nd of	-	oarabola.		
	8		at is difference between Path and				
	9		lain graph and subgraph with su		9 1		
	-	P	• •	age 1 of	•		
			r	uge I UI	(P.T.O))	

Q3 [A]	What is POSETS? Explain properties of POSETS. Draw the Hasse diagram of <s24, d="">.</s24,>						[6]		
Q3 [B]	Define a binary relation. Briefly Explain Symmetric, Antisymmetric and Transitive Relations using with proper example.						[6]		
Q3 [B]	OR Define Lattice. List the types of lattice and explain any 2 with example.						[6]		
Q4 [A] · Q4 [B]							[6] [6]		
Q4 [B]							[6]		
Q5 [A]	Fit a straight line trend for the following data: Year 2000 2001 2002 2003 2004 Earnings (Rs. Lakh) 5 7 4 9 10						[6]		
Q5 [B]	Explain Time Series components (i) Secular Trend and (ii) Irregular Variation.						[6]		
Q5 [B]	OR Calculate 5 –Yearly moving average for the following data to the numbers of [6] products failures in manufacturing industries during 2004 to 2019.						[6]		
	Year	No. of Failures	Year	No. of Failures	Year	No. of Failures	Year	No. of Failures	
	2004	23	2008	20	2012	9.	2016	12	
	2005	26	2009	12	2013	13	2017	9	
	2006	28	2010	12	2014	11	2018	3	
	2007	32	2011	10	2015	14	2019	1	
					•			•	
Q6 [A]	Below is g	ven the Bir					·····		[6]
			2015	2016			2018	2019	
		·	8	9		8	9	16	
	T:Year; Y:Population ('in millions')								
06 [D]	Fit a Straight line and determine the population for the year 2023					161			
Q6 [B]	Define Time Series and discuss utilities of Time Series in detail. [6					[6]			
Q6 [B]						[6]			



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