(B)

[8]

## SARDAR PATEL UNIVERSITY

## M. Sc. Information Technology

Semester - I External ATKT Examinations

## PS01CINT03 - Introduction to Theoretical Computer Science 7<sup>th</sup> April 2016, Thursday

·1 ·		se the most ap		-	on for e	each qu	estion.			
	(A)	ldempotent Law			(C)	Comp	olement Law			
	(B)	ldentity Law			(D)	Invol	ution Law			
	Maxii	mum number o								
	(A)	n(n-1)/2	(B)	ก-2		(C)	n/n-2	(D)	None of these	
		is used	to deno	ote the	univer	sal lowe	er bound and		is used to denot	
	unive	rsal upper bou	•							
	(A)	0, 0	(B)	1, 0		(C)	1, 1	(D)	0, 1	
	Replacing meet operation over join and join over meet operation is known as									
	(A)	Principle of membership			(C)	Princ	iple of lattices			
	{B}	Principle of duality			(D)	None	of these			
	The C	Cardinality of a								
	(A)	{A}	(B)	[A]	· ·	(C)	<a></a>	(D)	A	
	Accor	ding to modus	tollens	if P => 0	Q and ^	'Q is tru	e then	is	true.	
	(A)	~p	(B)	P ···		(C)	Q	(D)	~P V Q	
	A phrase structure grammar with no restriction is referred as g								rammar.	
	(A)	type – 0	(B)	type -	<b>-1</b>	(C)	type – 3	(D)	None of these	
			nomenon over a period							
	of tim	ne.								
	(A)	Time series			(C)	Statis	tics			

None of these

Frequency distribution (D)

	Answer the fo	llowing q	uestion	s (Any Sev	/en):					[		
	Define with an	id exampl	le: Lattic	e, Comple	te Lattice.							
	Define with and example: Lattice, Complete Lattice.  Explain Weighted graphs and multigraphs.											
	Draw Hasse di											
	Draw a Truth table for (P A Q) V (P A R).											
	Explain utilities of time series with example.											
	Define Algorithm.											
	List the components of time series.											
	Construct a grammar for the language $L = \{a^i b^{2i} / i >= 1\}$ .											
	List the major components of phase structure grammar.											
	Answer the fo	llowing	question	ş:								
		Explain properties of binary relations with suitable example.										
	Write a note of					-		•				
	VIII.0 U			•	OR							
	Write the sho	rtest path	ı algorit <del>l</del>	nm.					,			
Ļ	Answer the fo	llowing	question	ıs:								
	Discuss tracta	ble and ir	ntractab	le problen	ns in detail	l. Als <mark>o spe</mark> c	ify what i	s class of	NP problem?	•		
	Discuss tractable and intractable problems in detail. Also specify what is class of NP problem? Explain the use of lattices in design and implementation of digital networks in detail by taking appropriate example.											
		•			OR							
	Discuss Boolean Lattices and Boolean Algebra in detail with example.											
;	Answer the fo	ollowing	questior	ıs:								
					series. Est	imate the	value for 2	2015.				
	Answer the for				series. Est 2007	imate the	value for 2	2015.				
	Fit a Straight	ine trend	for the 2005	following					_			
	Fit a Straight Year	ine trend 2004	for the 2005	following 2006	2007	2008	2009	2010	_			
	Fit a Straight Year Earnings	2004 60	for the 2005	following 2006 75	2007 65	2008 80	2009	2010	_			
•	Fit a Straight Year Earnings (Rs. Lakhs) Write a De M	2004 60 organ's L	Tor the 2005 72 aw and I	2006 75 Prove ther	2007 65 m using tru OR	2008 80 uth table.	20 <u>09</u> 85	95				
	Fit a Straight Year Earnings (Rs. Lakhs)	2004 60 organ's L	Tor the 2005 72 aw and I	2006 75 Prove ther	2007 65 m using tru OR	2008 80 uth table.	20 <u>09</u> 85	95	e the value fo	ır		
	Fit a Straight Year Earnings (Rs. Lakhs) Write a De M	2004 60 organ's L	Tor the 2005 72 aw and I	2006 2006 75 Prove ther	2007 65 m using tru OR sing Semi-	2008 80 uth table. Average m	2009 85 ethod and	95 estimat		ır T		
	Fit a Straight Year Earnings (Rs. Lakhs) Write a De M Determine tro 2017.	organ's L	Tor the 2005 72 aw and I	75 Prove ther	2007 65 m using tru OR sing Semi-	2008 80 uth table. Average m	2009 85 ethod and	2010   95   estimat	2015	ır 		
	Fit a Straight Year Earnings (Rs. Lakhs) Write a De M Determine tro	organ's L	Tor the 2005 72 aw and I	2006 2006 75 Prove ther	2007 65 m using tru OR sing Semi-	2008 80 uth table. Average m	2009 85 ethod and	2010   95   estimat		ır		
	Fit a Straight Year Earnings (Rs. Lakhs) Write a De M Determine tro 2017. Year Profit	organ's L	Tor the 2005 72 aw and I e followi	2006 2006 75 Prove ther ng data us	2007 65 m using tru OR sing Semi-	2008 80 uth table. Average m	2009 85 ethod and	2010   95   estimat	2015	or		
	Fit a Straight Year Earnings (Rs. Lakhs) Write a De M Determine tro 2017. Year Profit  Answer the f	ollowing	Tor the 2005 72 aw and I e following 2010   2 question	75 Prove ther ng data us 011 4	2007 65 m using tru OR sing Semi- 2012 22	2008 80 uth table. Average m 2013 30	2009 85 ethod and	2010   95   estimat	2015	r ]		
	Fit a Straight Year Earnings (Rs. Lakhs) Write a De M Determine tro 2017. Year Profit  Answer the f Write a note	organ's Land of the land of the land of the land on fuzzy land on fuzzy land land land land land land land land	aw and I e followi	2006 2006 75 Prove ther ng data us 011 4	2007 65 m using tru OR sing Semi-a 2012 22	2008 80 Juth table. Average m 2013 30 in brief.	2009 85 ethod and 20 28	2010   95   estimat	2015	ır		
5	Fit a Straight Year Earnings (Rs. Lakhs) Write a De M Determine tro 2017. Year Profit  Answer the f Write a note Given R and S	ollowing on fuzzy large	aw and I 2010   2 20	2006 75 Prove ther ng data us 011 4	2007 65 m using tru OR sing Semi- 2012 22 fuzzy sets sets {1,3,5}	2008 80 uth table. Average m 2013 30 in brief. X {1,3,5} s	2009 85 ethod and 20 28 such that	2010   95   estimat	2015	r		
5	Fit a Straight Year Earnings (Rs. Lakhs) Write a De M Determine tro 2017. Year Profit  Answer the f Write a note	ollowing on fuzzy large	aw and I 2010   2 20	2006 75 Prove ther ng data us 011 4	2007 65 m using tru OR sing Semi- 2012 22 fuzzy sets sets {1,3,5} and Max-m	2008 80 uth table. Average m 2013 30 in brief. X {1,3,5} s	2009 85 ethod and 20 28 such that	2010   95   estimat	2015	ır		
ō	Fit a Straight Year Earnings (Rs. Lakhs) Write a De M Determine tro 2017. Year Profit  Answer the f Write a note Given R and S R= {(x,y)   y =	ollowing on fuzzy lare x+2} and	Tor the 2005 72 aw and I e following the 2010   2 cuestion   2 cuestion define   S= {(x, y)}	rove ther ng data us  011 4 ns: so explain ned over s ) { x <y}. fi<="" td=""><td>2007 65 m using tru OR sing Semi- 2012 22 fuzzy sets sets {1,3,5} and Max-m OR</td><td>2008 80  uth table.  Average m 2013 30  in brief. X {1,3,5} sin compos</td><td>2009 85 ethod and 20 28 such that sition R o S</td><td>  2010   95   estimat</td><td>2015 32</td><td></td></y}.>	2007 65 m using tru OR sing Semi- 2012 22 fuzzy sets sets {1,3,5} and Max-m OR	2008 80  uth table.  Average m 2013 30  in brief. X {1,3,5} sin compos	2009 85 ethod and 20 28 such that sition R o S	2010   95   estimat	2015 32			
ō	Fit a Straight Year Earnings (Rs. Lakhs) Write a De M Determine tro 2017. Year Profit  Answer the f Write a note Given R and S R= {(x,y)   y =	ollowing on fuzzy $\tilde{A} = \{(x1)^{1/2}   (x1)^{1/2} \}$	aw and I e following  2010   2  Question  logic. Alstion defit  S= {(x,y), 0.3) (x, 2)	2006 2006 75 Prove there ng data use 011 4 ns: so explain ned over s ) { x <y}. fi<="" td=""><td>2007 65 m using tru OR sing Semi-A 2012 22 fuzzy sets sets {1,3,5} and Max-m OR (1)} and E</td><td>  2008   80   with table.   Average m   2013   30   in brief.   X {1,3,5} sin composition composition</td><td>2009 85 ethod and 20 28 such that sition R o S</td><td>2010 95 l estimat</td><td>2015</td><td></td></y}.>	2007 65 m using tru OR sing Semi-A 2012 22 fuzzy sets sets {1,3,5} and Max-m OR (1)} and E	2008   80   with table.   Average m   2013   30   in brief.   X {1,3,5} sin composition	2009 85 ethod and 20 28 such that sition R o S	2010 95 l estimat	2015			
ō	Fit a Straight Year Earnings (Rs. Lakhs) Write a De M Determine tro 2017. Year Profit  Answer the f Write a note Given R and S R= {(x,y)   y =	ollowing on fuzzy lare relation univer	aw and I e following  2010   2  Question  logic. Alstion defit  S= {(x,y), 0.3) (x, 2)	rotlowing 2006 75 Prove there ng data us 011 4 ns: so explain ned over s ) { x <y}. 2,0.8)(x="" 3="" colosure="" fi="" td="" x.<=""><td>2007 65 m using tru OR sing Semi-A 2012 22 fuzzy sets sets {1,3,5} and Max-m OR (1)} and E</td><td>  2008   80   1th table.   Average m   2013   30   in brief.   X {1,3,5} strin composition composition</td><td>2009 85 ethod and 20 28 such that sition R o S</td><td>2010 95 l estimat</td><td>2015 32</td><td></td></y}.>	2007 65 m using tru OR sing Semi-A 2012 22 fuzzy sets sets {1,3,5} and Max-m OR (1)} and E	2008   80   1th table.   Average m   2013   30   in brief.   X {1,3,5} strin composition	2009 85 ethod and 20 28 such that sition R o S	2010 95 l estimat	2015 32			