Top	Date
	University of Delhi-Open Book Examination
	University of Delhi-Open Book Examination (Semester Examination)
	NAME: Khushal Sachdeva
•	EXAMINATION ROLL NO.: 20003570032
	COURSE NAME 8 (570) - (CBCS) B. Sc. (Hons.) Computer Science
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	NAME OF COLLEGES (003) - Atma Ram Sanatan Dharam College
	EMAIL ID: 88044@ arsd. du. ac.in
	MOBILE NO.: 8178594741
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Торі	c
	QUESTION: 1
Ans.	
(a)	f(A, B, C, D) = E(1, 2, 3, 7, 8, 10) d(A, B, C, D) = E(0, 5, 6, 11, 15)
	d(A,B,C,D) = S(0,5,6,11,15)
	AB 00 01/11/10 IT
	00 X 1 1 1 1
	0 1 3 2
	01 4 X 1 7 X 6
	12 13 15 14
	10 1 X 1
	8 9 11 10
	0.17-2
	F = AD + BD (Obtimized exPression)
	f = AD + BD (Optimized expression)
b)	F=AD+BD
	using De-Morgan's law (X+Y)' = XY
	7
	$F' = (\overline{A}D + \overline{B}\overline{D}) = (A + \overline{D})(B + D)$
	$f = (A + \overline{D})(B + D)$
	$f = \overline{A}D + \overline{B}\overline{D} = \overline{A} \cdot 1 \cdot 1 \cdot D + 1 \cdot \overline{B} \cdot 1 \cdot \overline{D}$
	$= (\overline{A})(B+\overline{B})(C+\overline{C})(D)+(A+\overline{A})(\overline{B})(C+\overline{C})(\overline{D})$
1	= [AB+AB)(CD+CD) + (AB+AB)(CD+CD)
	F = ABCD + ABCD + ABCD
	+ ABCD + ABCD + ABCD + ABCD
*	(Original expression)
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c)	f = AD+BD (OPtimized form)  f = ABCD + ABCD form)
	F= ABCD + ABCD + ABCD + ABCD
	+ ABCD+ ABCD+ ABCD (original form)
A B	C D
I. A I.	BICID
100 1	
	ABCD
	ABCD (Don't
	ABCD
	ABCD
	ABCD
	ABZD
+1	) MBCD
	ĀBCD
-	ABCD (Don't)
	(are)
	Total No. of gaves =118
( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )	in original empression
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2	A - Do
	B
	F F
10	Total No. of gates = 6 in optimised form
al)	$f = \overline{A}D + \overline{B}D$ f' = AB + AD + BD
	$= AD + B\overline{D} + AB(D + \overline{D})$
	$= AD + B\overline{D} + AB\overline{D} + AB\overline{D}$
	= AD + ABD + BD + ABD
	$= AD(1+B) + B\overline{D}(1+A)$
12	$= AD(1) + B\overline{D}(1) \qquad \left[1 + X = 1\right]$
	$f' = AD + B\overline{D}$
	· f.f'=(AD+BD) (AD+BD)
	= AADD + ABDD + ABDD + BBDD
	= 0 + 0 + 0 + 0
,	
	· f+f' = AD+BD+AD+BD
	$= \overline{A}D + AD + \overline{B}\overline{D} + B\overline{D}$
	$= D(A+\overline{A}) + \overline{D}(B+\overline{B})$
,	$= D(1) + \overline{D}(1)$
	$=D+\overline{D}$
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То	opic	
<u>e</u> )	$AB+A(CD+C\overline{D})$	
	$= AB + AC(D+\overline{D})$	
	= AB + AC(1)	
	=A(B+C)	
		-
*		
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