		Reg. No. :									
Question Paper Code: 53402											
B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020											
Third Semester											
Electronics and Communication Engineering											
15UEC302 - DIGITAL ELECTRONICS AND DESIGN											
(Regulation 2015) Duration: One hour Maximum: 30 Mark								·ks			
PART A - $(6 \times 1 = 6 \text{ Marks})$											
(Answer any six of the following questions)											
1.	In the eight input possibilities of a 3 input NOR gate, how many of those CO1- possibilities will effect in HIGH output?								1- R		
	(a) 1	(b) 2	(c) 4			(d) 8				
2.	Determine the values of A,B,C and D that makes the sum term CO1 A'+B+C'+D equal to zero								1- U		
	(a) $A=1,B=0,C=0,D=0$ (b) $A=1,B=0,C=1.D=0$										
	(c) A=0,B=1,C=0,D=0	(d) A=1,I	(d) A=1,B=0,C=1,D=1								
3.	A full adder can be constructed out of						CO	2- R			
	(a) Two half adders		(b) Two h	(b) Two half adders and a OR gate							
	(c) Two half adders an	nd a NOT gate	(d) Two half adders and a AND gate					gate			
4.	Before an SOP implementation, the expression X=AB(C'D+EF) would CO2 require a total of how many gates?							2- R			
	(a) 1	(b) 2	(c) 4			(d) 5					
5.	The number of states a ring counter with 5 flip flops will have is CO3- R										
	(a) 5	(b)10	(c) 32		(0	d) No	one c	of the	e abo	ve	
6.	How many Flip-Flops	any Flip-Flops are in the 7475 IC? CO3- R									
	(a) 1	(b) 2	(c) 4		(0	d) 8					

7.	In Moore models, output is function of only									
	(a) Present state	sent state (b) Input state (c) Next state (d) E								
8.	The time sequence of enumerated in a	the time sequence of inputs, outputs, and flip-flop states can be umerated in a								
	(a) Transition table) Transition table (b) Truth table (c) Characteristic table (d) None of these								
9.	Transistor-transistor l	ransistor–transistor logic (TTL) is a class of digital circuits built from CC								
	(a) JFET	a) JFET (b) Resistors								
	(c) Bipolar Junction T	c) Bipolar Junction Transistors (d) Bipolar Junction Transistors and Resistors								
10.	The storage element f		CO5-R							
	(a) Diode	(b) Resistor	(c) Capacitor	(d) Flip Flop						
PART – B (3 x 8= 24 Marks)										
(Answer any three of the following questions)										
11.	Simplify the following	CO1- Ap	p (8)							
	$f(W, X, Y, Z) = \sum m(2, 6, 8, 9, 10, 11, 14, 15)$ using Quine-McClukey tabular									
	method.									
12.	Design a 4 bit magnitude comparator and draw its logic diagram.				p (8)					
13.	Draw the logic diagra	n its CO3- U	(8)							
	operation.									
14.	Design a sequence d	etector that produ	ices an output '1' whenever	the CO4-U	(8)					
	non-overlapping sequ	ence 1011 is detec	ted.							
15.	Implement the following two Boolean functions with a programmable CO5- U									
	logic array (PLA)									
	$F_1(A,B,C) = \sum m(0,1,2)$	3,4)								
	$E^{2}(\Lambda D C) - \Sigma m(12)$	(2, 4, 5)								

 $F2(A,B,C) = \sum m(1,2,3,4,5)$