DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – Oct 2018

Course: B. Tech in Computer Engineering **Sem: III**

Subject Name: Digital Electronics and Microprocessors **Subject Code: BTCOC305**

Max Marks: 20 **Date:- 12/10/2018** **Duration:- 1 Hr.**

Instructions to the Students:

1. All questions are compulsory.
2. Illustrate your answer with suitable diagram and examples.
3. Assume suitable data if required

		(Level/CO)	Marks
Q. 1			**[1 X 6]**
1.	If a signal passing through a gate is inhibited by sending a low into one of the inputs, and the output is HIGH, the gate is a (n): **[A]** NAND **[B]** NOR **[C]** AND **[D]** OR	**[Remember]**	
2.	Convert in to equivalent decimal 2148 = ? **[A]** 10410 **[B]** 14010 **[C]** 01410 **[D]** Not Possible	**[Understand]**	
3.	Each product term of a group, w'.x.y' and w.y, represents the ____in that group. **[A]** Input **[B]** Output **[C]** POS **[D]** SOP	**[Apply]**	
4.	Half-adders have a major limitation in that they cannot **[A]** No carry output **[B]** Only one bit addition **[C]** No carry input **[D]** None	**[Remember]**	
5.	Determine the output frequency for a frequency division circuit that contains 10 flip-flops with an input clock frequency of 20.48 MHz. **[A]** 10.24 KHz **[B]** 5 KHz **[C]** 30.24 KHz **[D]** 11.71 KHz	**[Apply]**	
6.	In a down counter, which flip-flop doesn't toggle when the inverted output of the proceeding flip-flop goes from HIGH to LOW. **[A]** MSB F/F **[B]** LSB F/F **[C]** All of above **[D]** None	**[Understand]**	
Q.2	**Solve any Two of the following.**		**[2 X 3]**
(A)	Encode the data 1001 in even parity, by using Hamming code.	**[Analyze]**	
(B)	Minimize given function using K- Map in SOP form $F(A, B, C, D) = \sum m(0,3,5,6,7,10,12,13) + \sum d(2,9,15)$	**[Analyze]**	
(C)	Illustrate the working of T flip flop as frequency divider circuit. (Divide by 4)	**[Apply]**	
Q. 3	**Solve any One of the following.**		**[8 x 1]**
(A)	Implement 8:1 Multiplexer using 2:1 Multiplexers. Draw the truth table to justify your answer.	**[Analyze & Apply]**	
(B)	Design asynchronous decade counter using T flip-flop.	**[Analyze & Apply]**	

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