B.E. Mechanical Engineering Sixth Semester ME602 - Industrial Electronics

P. Pages : 2 Time : Three Hours		2 ree Hou	rs * 1 3 4 7 *	GUG/W/18/1713 Max. Marks : 80
	Note	es: 1. 2. 3. 4.	All questions carry marks as indicated. Due credit will be given to neatness and adequate dimensions. Assume suitable data wherever necessary. Illustrate your answers wherever necessary with the help of neat s	sketches.
1.	a)	Conve	ert the following.	8
		i) ($(10110011)_2 = (?)_8 = (?)_H$	
		ii) ($(2AC \cdot 4F)_{\rm H} = (?)_2 = (?)_8$	
		iii) ($(924 \cdot 26)_{\text{D}} = (?)_{\text{BCD}} = (?)_{\text{Excess}-3}$	
		iv) ($(267 \cdot 33)_8 = (?)_D = (?)_2$	
	b)	Explai	in 4×1MUX in detail.	8
			OR	
2.	a)	Explai	in full adder. Obtain the expression for output.	8
	b)	Solve	the following using k-map.	8
		i) f	$F(A, B, C, D) = \Sigma m(0, 1, 2, 4, 5, 8, 10, 14)$	
		ii) f	$F(W, X, Y, Z) = \pi M(2, 4, 6, 7, 8, 9, 10) + d(0, 1, 3, 11, 15)$	
3.	a)	Explai	in Special function registers of microcontroller 8051.	8
	b)	Explai	in the internal memory organization of 8051 microcontroller.	8
			OR	
4.	a)	Draw	and explain functional block diagram of 8051 Microcontroller.	8
	b)	What	are the addressing modes of $8051 \mu\text{C}$? Explain.	8
5.	a)	State a	and explain timer modes of $8051 \mu C$.	8
	b)	How v	will you interface 8051 with 8255? Explain using proper diagram.	8
			OR	

6.		Explain the interfacing of 8051 with external RAM and ROM.	16				
7.	a)	Explain Watch dog timer.	8				
	b)	State the applications of PLC.	4				
	c)	What factors are taken into consideration while selecting PLC.	4				
OR							
8.	a)	Differentiate between PLC and 8051µC.	8				
	b)	Draw the ladder diagram for the following :	8				
		i) NAND gate ii) NOR gate					
9.	a)	Explain in detail the mechatronic application of automatic washing machine.	8				
	b)	How LVDT is used for pressure measurement? Explain.	8				
	OR						
10.	a)	Explain the function of programmable Logic Controller.	8				
	b)	Explain design stages of mechatronic systems.	8				
