

## **Term End Examination - November 2013**

Course : ITE205 - Digital Electronics and Microprocessors Slot: G2+TG2

Class NBR : 3955 / 3962 / 3969

Time : Three Hours Max.Marks:100

PART – A (8 X 5 = 40 Marks) Answer ALL Questions

1. Perform the following operation using 2's complement method:

a) 
$$(-64)_{10} - (+32)_{10}$$

b) 
$$(29.A)_{16} - (4F.B)_{16}$$

2. a) Realize the given function using NAND gates only

$$F = (A\overline{B} + \overline{A}B)(C + \overline{D})$$

- b) Implement Y=(A+B)(A+D') (A+B+C') using NOR gates only.
- 3. Explain Set-Reset Flip Flop using NOR gates and derive its Truth table.
- 4. Explain Ring counter with diagram. A 4-bit Ring counter with initial state 1001, what is the content in it after 10 clock pulses.
- 5. Design a Asynchronous 3-bit up (Negative Edge Triggering) down counter using JK-Flip Flop with Timing diagram.
- 6. With neat sketch, explain the operation of Successive Approximation type ADC.
- 7. What are the various types of interrupts in 8086 microprocessor? Which interrupt has the highest priority?
- 8. Explain the block diagram of PIC Controller (8259).

## PART - B (6 X 10 = 60 Marks)Answer any <u>SIX</u> Questions

9. Using the k-Map method simplify the following Boolean Function and obtain (1) minimal SOP (2) minimal POS expression. Implement the functions by using logic gates.

$$Y = \Sigma_m(0,2,3,6,7) + \Sigma_d(8,10,11,15)$$

10.	a) Implement the following function $F(A,B,C,D) = \Sigma_m(2,3,5,7,9,13,15)$ using $4x1$ multiplexer.	[5]
	b) Explain the PISO shift register with neat diagram.	[5]
11.	Design a synchronous UP counter of the given sequence 0,2,4,5,7,0,2, using T-FLIP FLOP.	
12.	Write short notes along with block diagram a) RAM b) ROM c) EPROM d) FLASH	
13.	Explain the construction, working principle and advantages of dual slope A/D converter.	
14.	a) Explain the logical organization of memory in Intel 8086 Microprocessors.	[5]
	b) Explain the Pointer and Index registers in 8086 Microprocessors.	[5]
15.	Explain any five Arithmetic Instructions in 8086 microprocessor with example.	
16.	Explain the USART with neat sketch diagram.	

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