VIT UNIVERSITY
(Estd. u/s 3 of UGC Act 1956)

Summer Term End Examination - July 2013

Class NBR : 1676 **Slot : B**
Course Code : ITE205
Course Title : Digital Electronics and Microprocessors

Time : Three Hours **Max.Marks:100**

Answer any TEN Questions
(10 X 10 = 100 Marks)

1. a) Using 1's and 2's complement perform following subtraction: **[5]**
   1010100 – 1000011.

   b) Explain the working of a 4 bit binary adder subtractor with suitable diagram and an example. **[5]**

2. An 8X1 multiplexer has inputs A, B and C connected to the select inputs S_2, S_1, S_0 respectively. The inputs I_0 through I_7 are as follows: $I_1=I_2=I_7=0$; $I_3=I_5=1$; $I_0=I_4=D$; and $I_6=D'$. Determine the Boolean function that the multiplexer implements.

3. What are the different types of shift registers and explain them briefly? The content of a 4-bit register initially 1101. The register is shifted 6 times to the right with the serial input being 101101. What is the content of the register after each shift?

4. Design 3 bit binary synchronous UP DOWN counter using 'T' Flip-flops.

5. With a neat sketch explain the operation of :

   a) Successive Approximation ADC. **[5]**

   b) Dual Slope ADC **[5]**

6. With a neat sketch explain the internal architecture of 8086 microprocessor.

7. What is meant by addressing mode? Explain all the addressing modes of 8086 microprocessor with an example for each addressing mode.

8. Write an assembly language program for 8086 to calculate the average of two data values. The result is to be stored in a memory location.

9. What are the different operating modes of 8255? Explain them briefly. Describe the control word bits for 8255.

10. a) Implement a Full subtractor using decoder. Use NAND gate to implement the function. **[5]**

b) With neat sketch, explain the working of Universal shift register. **[5]**

11. Draw the block diagram of 8259 PIC controller and explain the operation of it.

12. a) What are the various types of interrupts in 8086 microprocessor? Explain them briefly? Which interrupt has the highest priority? **[5]**

b) Use K map to find the minimum SOP form for the given function: **[5]**
F(A,B,C,D)= Σ (1,3,4,11,12,13,14,15)+d(0,2,6,10).

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