

**B.E./B.Tech. (FT) DEGREE END SEMESTER EXAMINATIONS, NOV/DEC 2012**

**BRANCH: ELECTRONICS AND COMMUNICATION ENGINEERING**

**FIFTH SEMESTER**

**BM9305 – MICROPROCESSOR, MICRO CONTROLLER AND SYSTEM DESIGN**

REGULATIONS: 2008

Time: 3 Hours

Max.Marks: 100

Answer ALL questions

**PART A – (10 x 2 = 20 marks)**

1. How do the address and data lines are de-multiplexed in 8085?
2. Compute the physical address of 8086 processor with CS = 002AH, and IP = 0023H
3. Explain the function of the following instruction used in 8086  
ADD AX, [DI + BX + 2H]
4. What is the purpose of DF flag in 8086
5. What do you meant by two-key lock out in 8279.
6. List out three important actions performed by Programmable Interrupt Controller (8259) on receiving INTA from the microprocessor?
7. What are the internal features of 8051 microcontroller?
8. How do you get the 16 bit address and 8 bit data lines in 8051 to access the external memory
9. Consider a DAC that uses R/2R ladder in which  $R = 5k$  and  $I_{ref} = 2\text{ ma}$  and find the  $V_{out}$  for the binary input 10011001
10. List out any two applications of Stepper Motor and DC Motor in field of bio-medical Instrumentation

**PART B – (5 x 16 = 80 marks)**

- 11 (i) Explain the Direct, Indirect, Register and Register Indirect addressing modes of 8085 with example instruction? (8)
- (ii) Explain the Hardware Architecture of 8086 with a neat diagram (8)

12 (a) Briefly discuss the five groups of Interrupts used in 8086 with its priority and also draw the IVT of 8086 to show the Interrupt structure and explain Interrupt associated instructions in detail.

(OR)

12 (b)(i) write a program to copy a block of 32 consecutive bytes from the block of memory locations starting at address 2000H in the current Data Segment(DS) to a block of locations starting at address 3000H in the current Extra Segment (ES). (10)

(ii) Explain the five basic operations on strings in 8086 with example. (6)

13 (a) Explain the architecture of 8255 and framing of control words for its different modes of operation

(OR)

13 (b) Draw the Block diagram of 8259 and explain the functions of each block in detail.

14 (a) Design a circuit and write a program to generate a square wave in all the output lines of Port 1 which is half the frequency of the signal applied at INT1 in pin P3.3 ( Provide 100% working diagram including the connection of VCC, Gnd, crystal, reset etc and program).

(OR)

14 (b) With a neat sketch, briefly explain the serial data transmission and reception employed in 8051 with its associated instructions

15 (a) Design a 8051 based system and also an assembly program necessary for converting analog signal to Digital signal and show the same in the LCD panel.

(OR)

15 (b) Describe any two ideas in the field Bio-medical system where we can use 8051 system design to capture the biological parameters

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