

Code: EC6T2

**III B.Tech - II Semester – Regular Examinations - May 2015**

**MICROPROCESSORS AND MICROCONTROLLERS  
(ELECTRONICS & COMMUNICATION ENGINEERING)**

Duration: 3 hours

Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1 a) Draw the functional block diagram of 8085 microprocessor and explain its Flag register. 7 M

b) Explain the different types of Instructions in 8085 Microprocessor. 7 M

2 a) Explain the addressing modes of 8086 microprocessor with suitable examples. Assume BX=0158, DI=10A5, Displacement = 1B57, DS=2100 and DS is used as segment register and then calculate the effective and physical address for the following addressing modes. 7 M

i) Direct

ii) Register Indirect and Register Relative  
(assume register BX)

iii) Based Index and Relative based index  
(assuming register BX)

- b) Explain about the bus structure in minimum mode configuration of an 8086 microprocessor. Show the timing diagram of a memory read cycle. 7 M
- 3 a) Explain about the following 8086 microprocessor instructions, indicate the flag bits that will be affected 7 M  
(i) REP (ii) AAS (iii) SHR  
(iv) LOOPZ (v) SCAS (vi) INC
- b) Write an 8086 ALP to sort an array of 'N' single byte numbers in ascending order. 7 M
- 4 a) Give control and status registers of 8254 and illustrate the different modes of 8254 Programmable Interval Timer (PIT). 7 M
- b) Explain the interfacing of ADC with 8086  $\mu$ P through 8255 and write necessary ALP. 7 M
- 5 a) Draw the functional block diagram of 8051  $\mu$ C and explain. 7 M
- b) Explain T-MOD and T-CON registers in 8051  $\mu$ C. 7 M
- 6 a) Give the different addressing modes used in 8051 ALP with example. 7 M

- b) Explain the following microcontroller instructions. 7 M  
(i) ADD A, Rn (ii) SWAP A (iii) PUSH direct  
(iv) CPL bit (v) SJMP rel
- 7 a) Write an 8051 microcontroller program for real time clock display. 7 M
- b) Draw and explain the DAC interfacing using 8051. 7 M
- 8 a) Explain Real and Virtual mode in 80286. Also explain the mapping of virtual memory with physical memory and also tell the phenomenon of using page table in microprocessor. 7 M
- b) What are the four major architectural advancements in 80486 over 80386? What are the data types supported by 80486? 7 M