

Code No: R32024

**R10**

**Set No. 1**

**III B.Tech II Semester Supplementary Examinations, April/May - 2019**

**MICROPROCESSORS AND MICROCONTROLLERS**

(Electrical and Electronics Engineering)

**Time: 3 hours**

**Max. Marks: 75**

**Answer any FIVE Questions  
All Questions carry equal marks**

\*\*\*\*\*

- 1 a) Explain the Accumulator, temporary register and special purpose registers of 8086 microprocessor. [8]  
b) Draw and explain the 16-bit flag register format of 8086. [7]
- 2 a) Explain the four conditional jump instructions of 8086. [8]  
b) Explain the addressing modes of 8086 (i) Implicit or Inherent addressing mode [7]  
(ii) Immediate addressing mode (iii) Direct addressing mode (iv) Register indirect addressing mode.
- 3 a) Write an assembly language program in 8086 to sort a given set of 8-bit unsigned integers into descending order by using bubble sort method. [8]  
b) Write an assembly language program in 8086 to exchange a block of N bytes of data between source and destination. [7]
- 4 a) Explain briefly about mode 1 output operation of 8255. [8]  
b) Draw and explain the four-phase stepper motor interface circuit. [7]
- 5 a) Why 8086 memory is mapped into 2 byte wide banks? What logic levels are found with BHE and A0 when 8086 reads a word from the address 0A0AH? [8]  
b) Describe the series of action that DMA controller will perform after it receives a request from peripheral devices to transfer data from the peripheral device to memory. [7]
- 6 a) Draw the pin diagram of 8051 and explain I/O pins and control pins. [8]  
b) Explain the internal and external program memory as well as data memory of 8051 with the diagram showing their capacities. [7]
- 7 a) Discuss the addressing modes of 8051. (i) Direct addressing mode. (ii) Register indirect addressing mode. (iii) Index addressing mode. (iv) Register addressing mode. [8]  
b) Explain the format and bit definition of the following SFRs in 8051. (i) TMOD [7]  
(ii) SCON (iii) IP.
- 8 a) Explain briefly about interface an 8-bit 7-segment LED display to 8051 through port 1 and port 3 and write a assembly language program to display message on the display. [8]  
b) Draw and explain the timing diagram for external data memory for read and write cycle. [7]

\*\*\*\*\*