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Total Pages : 03

015403

May 2024

B. Tech. (ENC) (Fourth Semester)

Microprocessors and Its Applications (ECP-403)

Time : 3 Hours] [*Maximum Marks : 75*

Note : It is compulsory to answer all the questions (1.5 marks each) of Part A in short. Answer any *four* questions from Part B in detail. Different sub-parts of a question are to be attempted adjacent to each other.

Part A

1. (a) What is the difference between machine language and assembly language ? **1.5**

(b) What is the difference between subtract and compare instruction in 8085 ? **1.5**

(c) What are flags ? Which additional flags have been included in 8086 ? **1.5**

(d) What is prefetch queue in 8086 ? **1.5**

(e) Explain the function of the following pins of 8085 ALE, HOLD and HLDA. **1.5**

(f) What is meant by Addressing modes ? **1.5**

(g) List all the string manipulation instructions used in 8086. **1.5**

(h) What is DMA ? **1.5**

(i) What is Pipelining ? How is it useful ? **1.5**

(j) Draw the 8255 BSR mode control word format. **1.5**

Part B

2. (a) Identify and draw the machine cycles for the 8085 instruction MVI A, 32H. **8**

(b) Explain the interrupts in 8085. **7**

3. (a) Write an assembly language program in 8086 to transfer a block of data, 20 bytes long, from source to destination location. Explain each instruction. **7**

(b) What is meant by Minimum and Maximum mode in 8086 ? List and explain the instructions used in maximum mode. **8**

4. (a) Draw the block diagram of 8086 microprocessor. Explain each and every block of the two functional units of 8086. **9**

(b) What is the concept of segmentation of memory in 8086 ? **6**

5. (a) Explain the ISR, IMR, IRR and PR registers of 8259 interrupt controller. **7**

(b) Explain all the modes of 8254 programmable timer with the help of diagrams. **8**

6. (a) What is the difference between arithmetic shift and logical shift in 8085 ? Why are shift and rotate instructions used in 8085 ? Explain with the help of an example. **8**

(b) Write 8085 assembly language program to arrange ten, 8 bit numbers in ascending order. Explain each instruction. **7**

7. (a) Explain the priority modes of 8257 DMA controller. **6**

(b) Write initialization instructions for 8255 to set up port A as an output port in mode 0, Port B as an output port in mode 1 and port C upper as an output port in mode 0. **9**