

Roll No.

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