

Roll No.

23257

M. Tech. 1st Sem.

(Electrical Power Systems)

Examination – January, 2016

MICRO PROCESSOR & MICRO CONTROLLER

Paper : MTEPS-101

Time : Three Hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any *five* questions. Each questions carries equal marks.

1. (a) Explain the architecture of the 8086 microprocessor with a neat functional block diagram. 15
- (b) The content of DS is 345BH. The amount of data that is to be stored in the data segment is 12K bytes. Where in memory, will this segment be located ? 5

2. (a) Write a program to add two 8-bit numbers (F0H and 50H) in the 8086 and to store the result in the memory, when the assembler is used. 13
- (b) Write the assembler directives used to define variables and constants. 7
3. (a) What is meant by the minimum mode operation of the 8086? How does the 8086 respond to the INTR interrupt in the minimum mode operation of the 8086? 12
- (b) Explain the bus timings for generation of the 8086 under maximum clock frequency waveforms. 8
4. (a) Explain DMA method of data transfer. 10
- (b) Explain interrupt-driven I/O. How does the 8086 respond to the INTR interrupt? 10
5. (a) What is an interrupt vector? 3
- (b) Write a program to create a file in the PC and store 100 bytes of data in it. The data to be taken from the memory location 3000H to 2000H, if the software interrupt INT 0AH is executed by the PC. Make the software interrupt INT 21H. 17
6. (a) What are the different operating modes of 8255? Find the data direction and mode register value of the 8255 ports if the control word is A0H. 10

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- (b) What is a stepper motor? Show interface connections for a microprocessor-based scheme for controlling a stepper motor. 10
7. (a) Describe the block diagram of the 8279 keyboard/display interface. 10
- (b) Explain how data can be transferred using 8251 USART at different baud rates? 10
8. (a) Draw and explain the pin diagram of 8051 microcontroller. 10
- (b) Add three 8-bit numbers the following program is developed assuming that the numbers are in memory locations 30H, 31H and 32H of the internal data RAM. The result is stored in memory locations 50H and 51H of the internal RAM. 10