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R 3310

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2007.

Fifth Semester

Mechatronics Engineering

EC 1318 — MICROPROCESSORS AND APPLICATIONS

(Regulation 2004)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the purpose of multiplexed address/data bus?

2. How many bytes are required to complete the following instructions of 8085?
   MOV A, B

   MVI A, 80 H

3. What is the need for address decoders in a microprocessor based system?

4. Which instructions are used to control the 8085 interrupts?

5. What are the advantages of programmable peripheral devices?

6. What is polling?

7. Differentiate between asynchronous and synchronous data transfer.

8. What are the operating modes of 8279 the keyboard display interface?

9. What are the basic blocks of temperature monitoring system?

10. List some applications of microprocessor based instrumentation.

PART B — (5 × 16 = 80 marks)

11. (a) (i) With a neat block diagram explain the architecture of INTEL 8085. (10)

(ii) Write an assembly language program to divide two 8 bit data's and store their result in the memory. (6)

Or

(b) (i) Classify and explain the instruction set of 8085 based on functions. Give examples. (10)

(ii) Explain in detail about the pins and signals of 8085 microprocessor. (6)

12. (a) (i) Design an 8085 microprocessor system using 4k bytes of EPROM and 4k bytes of RAM with starting address of 0000H and 4000 H respectively. Draw the memory organization and clearly indicates the address range for each chip. (10)

(ii) Compare the memory mapped I/O and peripheral mapped I/O schemes. (6)

Or

(b) (i) Discuss in detail about the serial type of data transfer scheme in 8085. (9)

(ii) Explain the interrupt driven data transfer scheme in 8085. (7)

13. (a) Draw the internal block diagram of the DMA controller (8257) and explain the same. (16)

Or

(b) With a neat diagram explain (USART) the programmable communication interface. (16)

14. (a) (i) With necessary circuits explain how the DAC is interfaced with the microprocessor based system? (10)

(ii) Write the steps to run the real time clock. (6)

Or

(b) (i) Draw and explain how the (8279) is interfaced With the 8085 processor. (10)

(ii) Write a program to interface the keyboard to the microprocessor. (6)

15. (a) With a neat block diagram explain the microprocessor based automotive system. (16)

Or

(b) With a neat block diagram explain the closed loop process control system. (16)