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Question Paper Code : 71777

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Sixth/Fifth Semester

Electrical and Electronics Engineering

EE 6502 — MICROPROCESSORS AND MICROCONTROLLERS

(Common to Robotics and Automation Engineering, Electronics and Instrumentation Engineering, Instrumentation and Control Engineering, Manufacturing Engineering)

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Why data bus is bi-directional?
2. List out the machine cycles of 8085 microprocessor.
3. Write an 8085 program to swap lower and higher nibble of the contents of accumulator.
4. List different instruction formats.
5. Classify the addressing modes of 8051 microcontroller.
6. List any four Special Function registers.
7. What are the modes of 8254 timer?
8. What is meant by cascading in 8259?
9. Explain the function of DJNZ instruction.
10. What is meant by bit oriented instructions?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the interrupt structure of 8085 microprocessor. (8)
(ii) With pin diagram explain 8085 microprocessor. (8)

Or

- (b) (i) Explain the registers of 8085 microprocessor? (8)
(ii) What is meant by memory interfacing? Explain with an example. (8)
12. (a) (i) Explain the addressing modes of 8085 microprocessor. (8)
(ii) Write an 8085 assembly language program to divide an 8 bit number by another 8 bit number? (8)

Or

- (b) (i) Write an 8085 assembly language program to find the largest among 'N' number where the value of N should be stored in 4200 and the array of elements from 4201. Store the result in 4300? (8)
(ii) What is meant by subroutine? Explain how the stack is affected while calling a subroutine program. (8)
13. (a) Explain Timer modes of 8051 microcontroller. (16)

Or

- (b) Explain the architecture of 8051 microcontroller with a block diagram. (16)
14. (a) Explain the functioning of 8255 programmable peripheral interface and its modes. (16)

Or

- (b) Explain the working of 8237 as a DMA controller and its command registers and their functions. (16)
15. (a) Explain the stepper motor control using 8051 and write an assembly language program for running the stepper motor in clockwise direction. (16)

Or

- (b) Explain the Closed loop control of a servo motor using 8051 with a neat diagram. (16)