Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 11237

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2014.

Fifth Semester

Electrical and Electronics Engineering

080280042 — MICROPROCESSOR AND MICROCONTROLLERS

(Common to 080280034 – Microprocessor and Microcontrollers, for B.E. (Part–Time), Fourth Semester, Electrical and Electronics Engineering)

(Regulation 2008)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. What are the registers available in 8085 microprocessor?

2. Why is ALE signal required in a 8085 microprocessor?

3. Write a control word to set 8255 Port A as input and Port B as output and Port C as input in mode I configuration.

4. What is the internal operating frequency of the 8279? How can you drive it from any available clock signal?

5. How does 8086 generate physical address?

6. List the interrupts present in 8086 with interrupt vector table.

7. State any four important features of 8 bit microcontroller

8. How does 8051 differentiate between the external and internal program memory?

9. What does the microcontroller do to interface an A/D converter?

10. List the typical voltage and current output ranges of sensors.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the Internal Architecture of Intel 8085 with the help of neat block diagrams. (16)

Or

(b) (i) Design a 8085 microprocessor system such that it should contain 2K byte of EPROM and 4K byte of RAM with starting addresses 0000H and 6000H respectively. (10)

(ii) Write an 8085 ALP to find the largest number from an array of numbers. (6)

12. (a) Explain in detail the internal architecture, operating modes and programming of 8255 PPI. (16)

Or

(b) Explain the pin configuration, operating modes and programming of 8251 serial interface. (16)

13. (a) Discuss about different addressing modes supported by 8086 with suitable example. (16)

Or

(b) (i) Discuss the memory segmentation in the 8086.Explain how a variety of program and data memory sizes can be obtained. (8)

(ii) Write an 8086 program to perform unpacked BCD division(eg.67/2).(Operands are stored in the memory). (8)

14. (a) With necessary diagrams and control word format, explain the different operating modes of timer in 8051 microcontroller. (16)

Or

(b) (i) With a neat diagram, explain the memory organization of 8051 microcontroller. (10)

(ii) Write a 8051 assembly language program to find the sum of first 'N' natural Numbers. (6)

15. (a) Interface a ADC chip with 8085 processor through 8255 ports and write an ALP to use BSR mode to START conversion and STATUS CHECK mode to read output data. Explain the complete circuit and programs. Use memory mapped I/O configuration. (16)

Or

(b) Draw the hardware circuit required for interfacing a four phase stepper motor to a microprocessor. Give the flowchart of the software driving it in clockwise and anticlockwise direction. (16)

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