Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 27219

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Fifth Semester

Electrical and Electronics Engineering

EE 6502 — MICROPROCESSOR AND MICROCONTROLLER

(Common to Electronics and Instrumentation Engineering/ Instrumentation and Control Engineering and Robotics and Automation Engineering)

(Regulations 2013)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   What is the use of stack pointer?

2.   Mention the use of ALE.

3.   How is time delay generated using subroutines?

4.   Explain the functioning of CMP instruction.

5.   List the interrupts of 8051 microcontroller.

6.   Write the function of TMOD register in 8051 microcontroller.

7.   Write the control word value for 8255 PPI when PORT A and PORT B are inputs in simple I/O mode.

8.   What are the working modes of 8254 timer?

9.   What is meant by PSW?

10. List out the difference between MOV and MOVX instructions.

PART B — (5 × 16 = 80 marks)

11. (a) Explain with a neat block diagram, the architecture of 8085 microprocessor. (16)

Or

(b) (i) Explain the interrupt structure of 8085 microprocessor. (8)

(ii) Draw the timing diagram of Opcode Fetch machine cycle. (8)

12. (a) (i) Explain the addressing modes of 8085 microprocessor with example for each. (8)

(ii) Write a 8085 assembly language program to divide a 8 bit number by another 8 bit number and store the remainder and quotient in memory locations 4252 and 4253 respectively. (8)

Or

(b) Write an 8085 assembly language program to solve the following equation:

$Z = 2X+Y$ where X and Y are stored in memory locations 4200 and 4201 respectively. The value of Y should be stored in 4202(Lower byte) and 4203(higher byte). (16)

13. (a) Explain the Timers of 8051 microcontroller with appropriate diagrams. (16)

Or

(b) Explain the I/O ports and their functions of 8051 microcontroller. (16)

14. (a) Explain the block diagram, architecture and registers of the 8279 keyboard / display Controller. (16)

Or

(b) (i) Explain the block diagram and modes of the 8254 timer. (8)

(ii) Explain the architecture, functions and registers of the 8255 PPI.(8)

15. (a) Explain the working of a washing machine and how it is controlled by the 8051 Microcontroller. (16)

Or

(b) Explain how to control a stepper motor using 8051 microcontroller with a neat interfacing diagram and assembly program. (16)

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