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Question Paper Code : 21458

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

Fifth Semester

Electronics and Instrumentation Engineering

EC 2312/10133 EE 503/EE 2354/10133 EC 506/EE 64 — MICROPROCESSORS AND MICROCONTROLLERS

(Common to Instrumentation and Control Engineering)

(Regulations 2008/2010)

(Common to PTEE 2354/PTEC 2312/10133 EE 503 – Microprocessors and Microcontroller for B.E. (Part-Time) Fourth Semester – Electrical and Electronics Engineering – Regulations 2009/2010)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is a microprocessor? How is it different from microcomputer?
2. What is the function of the signals ALE and IO/$\overline{M}$?
3. Find the addressing mode of the instruction
   (a) MOV A, M
   (b) RAR.
4. Write a program to set auxiliary flag and sign flag of a status register.
5. Draw the format of the control word register.
6. What is the need for SOC and EOC signals in A/D converters?
7. Distinguish between program memory and data memory.
8. What is the maximum pulse rate that can be counted on pin TI of 8051, if the oscillator frequency is 6 MHZ?
9. Write a program
   (a) To exchange the contents of SP and PSW
   (b) To set timer 1 to A23D$_H$.
10. Why it is important to employ debounce subroutine in a keyboard programme?

PART B — (5 × 16 = 80 marks)

11. (a) With a neat sketch explain the architecture of 8085 microprocessor.

Or

(b) With a neat sketch explain the architecture of 8086 microprocessor.

12. (a) (i) Write a program to arrange n numbers in ascending order. (8)

(ii) Using look-up table method write a program to find the cube of the given number. (8)

Or

(b) (i) With the suitable examples explain the addressing modes of 8085 microprocessor. (8)

(ii) Write a program to find the number of odd numbers in a given array of 10 numbers. (8)

13. (a) Describe in detail about the working of 8279.

Or

(b) Discuss the different modes of operation of a 8253 timer.

14. (a) With the help of functional block diagram explain the various signals present in 8051.

Or

(b) Explain in detail about I/O ports, interrupts and serial communication port of 8051.

15. (a) (i) Write a program to scan the keyboard and display the key code for the key pressed using 8051. (8)

(ii) Write briefly about closed loop control of servomotor using 8051. (8)

Or

(b) Discuss in detail the operation of a microcontroller based washing machine.

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