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4.1.16 FN

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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 $\overline{IO/\overline{M}}$?
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 A23DH.
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.