

May - June - 2011

T. E. Electrical

Sem - I



[3963] - 262

**T.E. (Electrical) (Semester - I) Examination, 2011
MICROCONTROLLER AND ITS APPLICATIONS (New)
(2008 Pattern)**

Time : 3 Hours

Max. Marks : 100

- Instructions :**
- 1) Answer 3 questions from Section I and 3 questions from Section II.
 - 2) Answers to the **two** Sections should be written in **separate** books.
 - 3) **Neat** diagrams must be drawn **wherever** necessary.
 - 4) Black figures to the **right** indicate **full** marks.
 - 5) Your answers will be valued as a **whole**.
 - 6) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is **allowed**.
 - 7) Assume suitable data, if **necessary**.

SECTION - I

1. a) Explain in detail classification of microcontrollers based on various factors. **8**
- b) Explain RAM organisation of 8051 microcontroller. **8**

OR

2. a) With the help of block diagram of 8051 microcontroller explain function of each block. **10**
- b) With the help of status flag register explain various status flags of 8051 microcontroller. **6**
3. a) Explain various interrupts of 8051, default priority, flag used for each interrupt with vector location address. **8**
- b) Write an assembly language program to add two 32 bit hexadecimal numbers stored at following interval

RAM

40 H - byte 1 of Number 1	50 H - byte 1 of Number 2
41 H - byte 2 of Number 1	51 H - byte 2 of Number 2
42 H - byte 3 of Number 1	52 H - byte 3 of Number 3
43 H - byte 4 of Number 1	53 H - byte 4 of Number 4

Store result at 60 H onwards.

8

OR

P.T.O.



4. a) Explain various modes of timer of 8051. 8
b) Write an assembly language program to add two arrays starting from 40 H onwards and 50 H onwards in internal RAM. Store the result in third array with starting address of 60 H. The length of array is of H. 8
5. a) What is difference between RET and RETI instructions ? Explain why we cannot use RET instruction instead of RETI instruction in ISR. 9
b) Write an assembly language programme to find smaller number out of two numbers stored in external RAM A000H and A001H. Store smaller number at external RAM location B000H. 9

OR

6. a) Explain bit level and byte level jump instructions. 8
b) Write an assembly language program to perform logical AND operations on p 1.0 and p 1.1 and output the result of logical AND operation on p 1.2. 4
c) Write an assembly language program to search a byte A0 from a array of 4 numbers and store location address (internal RAM) at external memory location C000H. 6

SECTION – II

7. a) Explain the salient features of members of MCS-51 family. 8
b) Explain steps to transfer data serially in 8051 and receive data serially. 8

OR

8. a) Write a short notes on simulator, emulator, assembler and compiler used for 8051. 8
b) Explain 8051 communication with computer through RS 232. 8
9. a) Draw the interfacing diagram and explain control of stepper motor with 8051 microcontroller. 8
b) Draw and explain interfacing diagram of 8051 to control DC motor. 8

OR

10. a) With the help of block diagram explain temperature measurement scheme using 8051 microcontroller. 8
b) With the help of block diagram explain flow measurement scheme using 8051 microcontroller. 8
11. Explain interfacing diagram for measurement of following electrical parameters with the help of 8051 i) measurement of frequency ii) measurement of apparent power. 18