



[4063] – 252

T.E. (Electrical) (Semester – I) Examination, 2011
MICROCONTROLLER APPLICATIONS
(2008 Pattern) (New)

Time : 3 Hours

Max. Marks : 100

- Instructions :** 1) Answers to the *two* Sections should be written in *separate* books.
 2) *Neat* diagrams must be drawn *wherever* necessary.
 3) Black figures to the *right* indicate *full* marks.
 4) Your answers will be valued as a *whole*.
 5) Assume suitable data, *if* necessary.

SECTION – I

1. a) Compare Microprocessor and Microcontroller. 8
- b) Draw and explain Internal RAM organization of 8051. 8

OR

2. a) What are the advantages and disadvantages of using Harvard architecture in 8051 ? 8
- b) Explain PSW SFR. Give the application differences between carry and overflow flags. 8
3. a) What is the jump range ? Enlist all jump instruction. 5
- b) Enlist stack and stack related instructions. 5
- c) Write a program to clear memory locations from D500H to D8FFH. 6

OR

4. a) Explain the functioning of PC, SP and DPTR, if following instructions are executed. 8
 - i) CALL
 - ii) JMP
- b) Write a program to copy an array of 10 elements from a location 40H onwards to external location D050H onwards. 8

P.T.O.



5. a) Explain SPI protocol, hence draw block diagram for master and 3 co-operative slave. 9
- b) Write steps in executing interrupts. Explain IE. 9.

OR

6. a) Explain SCOH for mode 1, standard UART and its Bond Rate Evaluation methods. 8
- b) Explain Autoreload mechanism of timer operation. 5
- c) What do you mean by multiprocessor communications. 5

SECTION – II

7. a) Explain in detail microcontrolled based development system. 8
- b) Explain Simulator, Emulator, Assembler. 8

OR

8. a) Explain Role of programmers and cross Assembler. 8
- b) Interface 16 KB of EPROM with 8051 with starting address 0000H and 8 KB of RAM with starting address 8000H. Give memory mapping. 8
9. a) Draw interfacing diagram for stepper motor interfaced with internal port pins 2.4 – 2.7. Driver circuit consist of transistor darlington pair. 9
- b) If clockwise step sequence of above stepper motor is 33h, 66h, cch and 99h. Write a program to rotate stepper motor in clockwise and Anticlock wise direction. 9

OR

10. a) Interface DAC 0808 with 8051 hence write a program for square waveform. 9
- b) Discuss various types of presser sensors and transducers, hence explain pressure monitoring with microcontroller. 9
11. a) Draw pin diagram of LCD 44780 and explain its interfacing with 8051. 8
- b) Explain r.m.s. voltage measurement using 8051. 8

OR

12. a) With neat circuit diagram explain how a 4×4 key pad is interfaced with 8051. 8
- b) Write a short note on 8051 based DC motor control. 8