MS – 365

VI Semester B.Sc. Examination, May 2016
(NS) (2013-14 and Onwards) (F + R)
ELECTRONICS – VII
Microcontrollers

Time : 3 Hours Max. Marks : 70

Instruction : *Answer **any five** questions from Part – **A** and **any four** questions from Part – **B** and **any five** sub-questions from Part – **C**.*

PART – A

Answer **any five** questions : **(5×8=40)**

1. What is a microcontroller ? Draw functional block diagram of 8051 microcontroller. **8**
2. Write a note on "Special function registers". **8**
3. Explain the various interrupts of 8051 microcontroller. Also mention the interrupt control related special function registers. **8**
4. Explain, all Rotate and SWAP instructions available in 8051 microcontroller with an example. **8**
5. With a necessary diagram, explain relative range, short absolute range and long absolute range used in 8051 microcontroller. **8**
6. a) Explain in detail the CALL and RET instructions in 8051 microcontroller.
   b) Differentiate between stack and stack pointer. **(6+2)**
7. Mention the different data types and logical operators used in 8051 C. **8**
8. With necessary diagram, explain the interfacing of 8051 to seven segment display. **8**

PART – B

Answer **any four** questions : **(4×5=20)**

9. Draw the bit structure of TCON register of 8051 and mention the function of each bit. **5**
10. Show the bit assignment and specify each bit of SCON register. **5**

P.T.O.

11. Write a program to find the largest of three 8-bit numbers stored in memory locations 40 H to 42 H, Store the result in the memory location 43 H. **5**

12. Write a program to find the two's complement of a 16 bit number. **5**

13. Write a C-program to toggle bits of P1 continuously forever with some delay. **5**

14. Write 8051 C program to generate square wave. **5**

PART – C

Answer **any five** sub-questions : **(5x2=10)**

15. a) What is the memory size of internal RAM and ROM of 8051 microcontroller. **2**

    b) Is MOV #n, A instruction valid ? Justify. **2**

    c) Identify the addressing mode used by each of the following instructions : **2**

       i) MOVR1, 90 *h*

       ii) CLR A.

    d) Mention the action of the instruction : JB b, radd. **2**

    e) Compare RET and RET1. **2**

    f) Mention the memory location address of any four interrupts of 8051. **2**

    g) Mention any two advantages of PIC Controllers over 8051. **2**