

B.Sc III Yr. (Vth Semester)
(2011-12)

Paper- ELE502, XVIII (Microcontroller-I)

Questions Bank

1. Explain the difference between:
 - i) Harvard and Van Neumann architecture, ii) RISC and CISC processors.
 - ii) Discuss the advantages microcontrollers over microprocessors in control applications.

2. Explain the operation of I/O ports in 8051.

3.
 - i) Discuss the oscillator circuit used in 8051 microcontroller for clock pulses.
 - iii) Explain the working of quasi-stable port in 8051.

4. Discuss the pin out diagram of 8051 and explain the functions of following pins:
 - i) ALE, ii) \overline{EA} , iii) RST, iv) XTAL2, v) R_{XD}

5. Draw the pin diagram of 8051 microcontroller. Explain the functions of the following pins:
 - i) \overline{PSEN} , ii) \overline{EA} , iii) T0, iv) RST, v) T_{XD}

6. Explain the memory organization in 8051.

7. Explain the different addressing modes supported by 8051 with one example of each.

8. Explain any five bit manipulation instructions for a microcontroller.

9.
 - i) What is the difference between LJMP, SJMP and AJMP?
 - ii) How does RETI and RET instructions differ?
 - iii) Explain the difference between MOVX and MOV instruction.
 - iv) Explain DJNZ R_n , rel and CJNE A, #DATA, rel

10. Explain about the interrupts and interrupt priorities in 8051.

11. Write an assembly language program for 8051 to find the number of zero's and number of one's in an 8 bit data.
12. Explain the bit pattern of TMOD and TCON registers. Explain the operation of timer in Mode 0.
13. What happens if following instructions are executed:
i) SWAP A, ii) MOVX A, @DPTR, iii) CJNE A, Direct, relative
iv) MOV 77H, 77H, v) MUL AB, vi) DJNZ R1, rel
14. Explain the serial communication in 8051 in Mode0 and Mode1.
15. Explain the logic used in generating the staircase waveform using 8051. Write a program in assembly language.
16. Explain how the pulse width measurement can be done using 8051. Write a program in assembly language.
17. Explain the principle of generating square waveform using 8051. Write a program in assembly language.
18. Explain how a pulse is generated using 8051. Write a program in assembly language for generating a pulse at a suitable Pin.
19. Explain the principle of generating square waveform using 8051. Write assembly language program to generate the square wave at Pin P1.2.
20. Draw the functional block diagram of 8051 micro-controller and explain the function of important blocks.