Couse: Embedded System Course Code: EMS198011

Semester: 5 CSE

List of Questions

1. Enlist features of 8051 (10 points). 3/4/6
2. Explain each bit of TMOD and TCON in respect to timer with suitable diagram. Write a pattern to operate timer 1 as a counter in Mode 1 and timer 0 as a timer in mode 2. 3/4
3. Explain the following instructions of µc 8051 with suitable examples. 3/4
4. With suitable diagrams justify the statement “Before using any 8051 µc port in input mode we have to write data bit 1 to that port”. Explain port 0 construction. 4/6
5. Justify “8051 has Accumulator based architecture.” 3/4
6. Explain internal structure of RAM in 8051 with suitable diagram. 6
7. Write functions of each bit in PSW and SCON, TCON, TMOD, PCON, IE and IP register with neat diagram. 3/4/6
8. Assume that a switch is connected to pin P2.0. Write a program to monitor the switch and perform the following: (i) If SW = 0, toggle each bits of port 1 continuously. (ii) If SW = 1, Send AAH data serially.

Assume that XTAL = 11.0592MHz. Sample program. Program may be changed. 4/5

1. Write an 8051-assembly program to read the status of 8 switches connected with port P0 and turn ON corresponding LEDs which are connected to the Port P1. Sample program. Program may be changed. 4/6
2. Generate a square wave of 8 kHz frequency on P2.2 using timer 0 in mode 1. Assume XTAL=11.0592 MHz. Sample program. Program may be changed. 4/6
3. Explain Timer/Counter control logic and explain Mode 2 of timer with suitable diagram. 4/6
4. Compare microprocessor and microcontroller. 3/4
5. Explain pins of 8051. 3/4
6. Explain different blocks of 8051. 4/6
7. With neat diagram describe port architecture of P1. 4/6
8. Write steps for transmitting and receiving byte of data from and to 8051. 4/6
9. Write steps to program timer in mode 1 with neat diagram. 4/6
10. Describe importance of TI and RI flag of 8051. 4/6
11. Write a program to transfer the message “YES” serially and continuously at 9600 baud, 8-bit data, 1 stop bit. Sample program. Program may be changed. 4/6
12. Describe various addressing modes of 8051 with example. 4/6
13. Differentiate between Interrupt and polling method. 4
14. Explain role of SBUF register of 8051 with help of diagram . 3/4
15. Draw and explain PSW of 8051. 4/6
16. Draw SCON register of 8051 and explain role of SM2 bit with example. ¾
17. Draw and explain IVT in 8051 interrupt. 4/6

\*\* all the best \*\*