

Question Bank (I scheme)

Name of Subject: Embedded Systems (ESY)

Subject Code: 22532

Semester: V

Unit Test: I

Course: EJ5I

Chapter 1 : Introduction to Embedded Systems (12 marks)

2 Marks

1. Compare Harvard and Von Neumann Architecture.
2. Compare RISC and CISC Processors
3. State features of 89C51
4. State the applications of 89C51

4 Marks

1. Draw the block diagram of Embedded System. Describe the hardware components
2. State features and applications of PIC microcontrollers.
3. State features and applications of ARM microcontrollers.
4. State features and applications of AVR microcontrollers.
5. State and describe the characteristics of Embedded systems.
6. State classification of Embedded System. Describe with example.

Chapter 2: Programming using Embedded 'C' (16 marks)

2 Marks

1. Write Logical operators in C for AND, OR, Ex-OR and NOT for 89C51 and state one example of each.
2. List various data types in embedded C with their data range.

4 Mark

1. Write a 'C' program to toggle P2.1 continuously with 100 ms delay. (Use simple delay subroutine).
2. Write 'C' program for 89C51 to read data from port P1 and P2 . Compare the data and send bigger data on port p3.
3. Write a 'C' program to generate a square wave of 5 kHz.(Operate timer 0 in mode 1).
4. Write a C language program to transfer the message "MSBTE" serially at 9600 baud rate, 8 data bit and 1 stop bit.
5. Write a C language program to read P2 and P3. Shift the bits of P2 to right by 2 bits and P3 to left by 4 bits. Store the content of P2 to P0 and P3 to P1.
6. Write C language program to read P0 and P1. Add the content of P0 and P1 and store the result to P2.

7. Write C language program to read P1 and store the one's complement of P1 to P2.
8. Write C program to transfer 10 bytes from array A to array B.
9. Write 'C' language program to check bit P1.2. If it is high send 55H to PO, otherwise send AAH to P2.
10. Write 89c51 "C" program to toggle all the pins of port P2 continuously with a 400 millisecond delay
11. Write a 'C' program to generate a square wave of 100Hz on P1.3. Also draw the output observed on P1.3

Chapter 3: Communication Standards and Protocols (12 marks)

2 Marks

1. State any four features of Bluetooth.
2. State features of USB serial communication protocol.
3. Describe the features of I2C serial communication protocol.
4. Describe the parallel protocols PCI and PCI-X.
5. Describe the serial protocols SPI and SSP.

4 Marks

1. Compare serial and parallel communication (any four points)
2. Compare synchronous and asynchronous communication (any four points)
3. Describe the need of RS-232 and MAX - 232 with a suitable diagram.
4. State any four important features of following advanced serial protocol:
 - i. IrDA
 - ii. Bluetooth
 - iii. Zigbee
5. Describe CAN Bus protocol with the frame structure.
6. Draw a labelled interconnection diagram between RS232 and 8951 microcontroller.
7. Draw the format of I2C and describe each field in brief.
8. Draw the pinout diagram of RS-232(DB9). State the function of all pins.
9. Distinguish between CAN and I2C protocols with respect to
 - a. Data transfer rate
 - b. Number of fields
 - c. Addressing bits
 - d. Applications