

QUESTION BANK (K Scheme)

Name of subject: Digital Electronics and Microcontrollers Applications

Course Title: DEM (314324)

Semester: 4K

Unit Test: II

Program Code: EE

CHAPTER 3: 8051 Microcontroller Architecture (08 marks) (CO3)

2 marks

1. Write the alternative function of Port-3 pins.
2. What is the use of stack in 8051 micro controller?
3. Draw the flag register (PSW) of 8051 microcontroller.
4. Evaluate the following program and specify the content of accumulator and status of PSW Register after execution:

```
MOV A,#23 H
MOV OFOH,#02 H
MUL AB
END
```

4 marks

5. Draw the architecture of 8051 and label various blocks.
6. Explain memory organization of 8051 microcontroller.
7. Draw SFR in 8051 with proper labeling of bit and byte addressable area.
8. Describe TMOD & TCON format.
9. Which pins of 8051 are used to perform the following function:
 - a) Receive the serial data
 - b) Enable External memory interface.
 - c) Multiplexing & De-multiplexing of address /data lines.
 - d) Applying External interrupts.

CHAPTER 4: 8051 Instruction Set and Programming (12 marks) (CO4)

2 marks

10. Define addressing modes.
11. Identify the addressing mode of the instruction :
 - (i) MOV X @ Ro, A
 - (ii) CJNE A,# data, rel
12. State the function of PUSH, POP, DAA, INC & DEC with examples.
13. If initial content of accumulator is 44 H, find out the new content of accumulator after execution of the instruction RR A.

4 marks

14. Describe the addressing modes of 8051 microcontroller with suitable example.
15. Explain Boolean manipulation & arithmetic instruction set with syntax and example.
16. Develop ALP for 8051 to perform addition, anding, multiplication of two data — Data-1 is at memory location 55 H and Data 2 is 20 H. Store result at internal memory locations.
17. Give the difference between the following instructions with function, syntax and two examples.
 - (a) XCH & XCHD
 - (b) MOV, MOVX & MOVC
18. Describe the following assembler directives with one example of each
 - (i) ORG (ii) DB (iii) EQU (iv) END (v) CODE (vi) DATA

CHAPTER 5: 8051 Interfacing and Application (12 marks) (CO5)

2 marks

19. Find the number of address lines required for: (i) 4 KRAM (ii) 8 KROM
20. State the function of RS and R/W pin in 16x2 LCD Display.
21. Describe the pins required for interfacing.
22. Define Step angle. Calculate no. of steps per revolution for step angle 4°.

4 marks

23. Sketch diagram showing interfacing of Interfacing of 8K X 8 Data ROM and 8K X 8 Program ROM to 8051 microcontroller. Write its memory map.

24. Explain with flowchart interfacing of Relay-Buzzer with 8051 microcontroller.
25. Develop an ALP for interfacing of LED's with port 1 of 8051. Draw interfacing & flowchart for the same.
26. Explain with flowchart an interfacing diagram of stepper motor with 8051.
27. Draw flowchart and the interfacing diagram of 16 x 2 LCD display with 8051.