SARDAR PATEL UNIVERSITY
M.Sc. (Semester IV) (CBCS) EXAMINATION 2015
Tuesday, 23st April 2015

P	S	0	4	C	E	L	C	0	2

8051 Microcontroller Programming and its applications

Time: 10:30 PM TO 1:30 PM
Total Marks: 70

Q1   Choose the correct answer.   [08]

1   The RAM size of 8051 microcontroller is_____
    a) 128 bytes   b) 256 bytes   c) 8 bytes   d) 16 bytes

2   How many Register banks are used in 8051 ?
    a) 2   b) 4   c) 8   d) 16

3   In the 8051,the program counter and DPTR register is_____ bit wide
    a) 4   b) 8   c) 16   d) 32

4   Which of the following is illegal for moving data to register.
    a) MOV R$_2$, # 456   b) MOV R$_2$, # 2BH
    c) MOV R$_0$, # 00H   d) MOV R$_2$, # 00H

5   What is the content of Accumulator after execution of following instruction.
                     MOV A , # OFF H
                     MOV R$_0$, # 77 H
                     ANL A , R$_0$
    a) 77 H   b) D2 H
    c) 79 H   d) 69H

6   Which register holds the serial data interrupt bits TI and RI
    a) SCON   b) PCON   c) TCON   d) TMOD

7   Which serial data transmission mode is selected by the programmer by setting SM0 and
    SM1 in SCON to 00b.
    a) Shift register mode
    b) Standard UART
    c) Multiprocessor mode
    d) Serial data mode 3

8   How many Interrupts are used in 8051 ?
    a) 5   b) 7   c) 9   d) 3

Q2   Answer in short. [**ANY SEVEN**].   **[14]**

1. Give the difference between Microprocessor and Microcontroller.
2. Give the difference between MOV and XCHG instruction with example.
3. What is subroutine? Explain.
4. Find the CY and AC flag bits for the following code.
   MOV A , #OFF H
   ADD A , #01
5. Enlist different feature of 8051 microcontroller.
6. Draw the PSW register for 8051.
7. Explain Special function resister TMOD in detail
8. Discuss the interrupt priority used in 8051.
9. Write a program to store the 34h and 65h in the register R_6 and R_7 and swap the content of R_6 and R_7.

Q3   A   Discuss in detail the architecture of 8051 microcontroller in detail.   **[06]**
Q3   B   Draw the pin-out diagram of 8051 microcontroller and discuss each pin in detail.   **[06]**

OR

Q3   B   What is addressing mode? Explain different addressing modes of 8051.   **[06]**

Q4   A   Explain Rotate instructions used in 8051 microcontroller.   **[06]**
Q4   B   Discuss in detail arithmetic and logical instruction with example.   **[06]**

OR

Q4   B   Enlist the different JUMP instructions and explain each in detail.   **[06]**

Q5   A   Explain the timer counter modes of operation in 8051.   **[06]**
Q5   B   Explain following Special Function register in detail   **[06]**
             (i) SCON   (ii) TCON   (iii) PCON

OR

Q5   B   Explain the serial data transmission modes of 8051 with baud rate of each mode.   **[06]**

Q6   A   Explain following in detail. (i) IE   (ii) IP   **[06]**
Q6   B   What is interrupt? Explain different types of interrupts in 8051.   **[06]**

OR

Q6   B   Explain with necessary diagram how 16x2 LCD is interface with 8051 microcontroller.   **[06]**

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