



**NBV-003-027602**

Seat No. \_\_\_\_\_

**M. Sc. (ECI) (Sem. VI) (CBCS) Examination**

**April / May - 2017**

**Paper - 22 - Basic Microcontroller & Interfacing  
(New Course)**

**Faculty Code : 003**

**Subject Code : 027602**

Time : 2½ Hours]

[Total Marks : 70

- Instructions :** (1) All questions carry equal marks.  
(2) Figures on right hand side indicate marks.

- 1 Answer the followiniz : (any seven) 14
1. What is the most important factor in choosing a microcontroller?
  2. Write an assembly language program for add the values 16H and CDH and place the result in register R2.
  3. What is the purpose of pseudo instruction in 8051 chip programming?
  4. Find the CY and AC flag bits for the following assembly language instructions:  
MOV A, #0C2H  
ADD A, #3DH
  5. Draw only the diagram of RAM memory space allocation in the 8051 chip.
  6. How does the CPU know where to return to after executing the RET instruction?
  7. Define BIT directive of 8051 micro controller.
  8. Define SUBB instruction with one example.
  9. What is an RS232 standard?
  10. Define Interrupt Service Routine.

- 2** Answer the following : (any two) **14**
1. Explain assembling and running process of the 8051 assembly language program. **7**
  2. Explain JUMP, LOOP and CALL instructions with examples. **7**
  3. Write an assembly language program to toggle all the bits of P1, P2, P3 at every 250ms. Assume crystal frequency of 11.0592 MHz **7**

- 3** Answer the following : **14**
1. Write a note on Addressing modes of 8051 microcontroller. **7**
  2. A switch is connected to pin P1.7. Write an assembly language program to check the status of the switch and make the following decision. **7**
    - (a) If SW = 0, send '0' to P2.
    - (b) If SW = 1, send '1' to P2.

**OR**

- 3** Answer the following : **14**
1. Explain XOR, ADDC, DA, MUL, RRC instructions with examples. **7**
  2. Explain the basics of serial communication. **7**
- 4** Answer the following : **14**
1. (a) Write an assembly language program to transfer the message "ELE' serially at 9600 baud, 8-bit data, 1 stop-bit. Do this continuously. **7**
  - (b) Write an assembly language program to receive bytes of data serially and put them in P1. Set the baud rate at 4800, 8-bit data, and 1 stop bit.
  2. Write an assembly language program to toggle all the bits of port P1 continuously with 500 ms delay in between. Use Timer 0, 16-bit mode to generate the delay. **7**

- 5** Answer the following : (any two) **14**
1. Assume that crystal frequency of 11.0592 MHz, **7**  
write an assembly language program to generate a square wave of 2 kHz frequency on pin P1.5. Use Timer 1, 8-bit mode.
  2. Write a note on Interrupt versus Polling. **7**
  3. Write a note on ADC804 interfacing with 8051 chip. **7**
  4. Write an assembly language program to display **7**  
message "ELECTRONICS" in LCD.
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