

B.E. / B.Tech. Instrumentation Engineering (Model Curriculum) Semester-V
IN504M / MICRO1 - Microcontroller & Interfacing

P. Pages : 2

Time : Three Hours



GUG/W/24/14024

Max. Marks : 80

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- Notes :
1. All questions carry marks as indicated.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.

1. a) Compare instructions ACALL and LCALL of 8051 and explain with suitable application in a program. 8

b) Write short note on “addressing modes of 8051 microcontroller”. 8

OR

2. a) Describe the internal architecture of the 8051 microcontroller with a block schematic diagram. 8

b) Draw the timing diagram for MOVX instruction. 8

3. a) Write a program to transfer a block of 10 bytes from location 2000H to 20H. 8

b) Write a program to add the contents of locations 2000H and 2001H. Store the result at 2002H (Sum) and 2003 (carry). 8

OR

4. a) Write a short note to explain editor, linker, debugger, locator, assembler, compiler, simulator. 8

b) What are assembler directives? Explain any three assembler directives in detail. 8

5. a) Write a short note on interrupt structure of 8051 microcontroller. 8

b) Elaborate the sequence of operation once microcontroller 8051 is interrupted by any of the interrupts. 8

OR

6. a) Interface the 8255 PPI with 8051 microcontroller such that the control word register is selected for address 1003H. Find the address of port A, port B and port C. 8

b) Explain serial communication in 8051 microcontroller. 8

7. a) Interface 4 digit Multiplexed 7 segment LED with 8051 microcontroller. 8

- b) Write a program to toggle the bits of port 1 with a delay of 10 ms. **8**

OR

- 8.** a) Interface LCD to 8051 microcontroller and write a program to display the message “LCD” on it. **8**
- b) Interface 8051 microcontroller with Analog to Digital Converter 0809. Write a program to read ten samples from channel no. 3 of ADC 0809 and store the received data into RAM locations starting from 30H. **8**
- 9.** a) Write a short note on ‘Arduino and its applications’. **8**
- b) Draw the detailed interface of Arduino uno with display device. **8**

OR

- 10.** a) Draw and explain the detailed architecture of Arduino and enlist some real time examples of Arduino. **8**
- b) Write a brief on timers and interrupts associated with Arduino. **8**
