

03 Hours

Total Marks-80

N.B. : (1) Question No. 1 is **compulsory**.

(2) Attempt any **three** questions from remaining **five** questions.

(3) Assume suitable **data** wherever necessary.

(4) Figure to right indicate **full** marks.

(5) Illustrate your answer with neat **sketches** wherever necessary.

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| 1. | Answers the following questions- | 20 |
| | a) Draw and explain block diagram of Microprocessor. | |
| | b) Draw and explain PORT 0 structure of 8051 Microcontroller. | |
| | c) Write a assembly language program for addition of 38H and 2FH and also show the status of the CY, AC and P flag. | |
| | d) With XTAL = 11.0592 MHz, find TH1 value at baud rates 9600 and 2400. | |
| 2. | a) Compare characteristics of RISC and CISC architecture. | 08 |
| | b) Write assembly program to convert packed BCD 29H to two ASCII numbers and place them in R2 and R6. | 08 |
| | c) State features of 8052 Microcontroller. | 04 |
| 3. | a) Draw architecture of advanced 80151 microcontroller and state its features. | 10 |
| | b) Draw Interfacing of DAC with 8051 microcontroller and write an assembly language program to produce sine wave. | 10 |

4. a) Write an 8051 C program to send two different strings to the serial port. Assuming that SW is connected to pin P2.0, monitor its status and make a decision as follows: 10
SW = 0: send MUMBAI
SW = 1: send UNIVERSITY.
Assume XTAL = 11.0592 MHz, baud rate of 9600, 8-bit data, 1 stop bit.
- b) Draw and explain Interrupt internal circuit diagram with its registers of 8051 Microcontroller. 10
5. a) Write an 8051 C program to send letters 'R', 'S', and 'P' to the LCD using delays. 10
- b) The word "RAJIV" is to be burned in the flash ROM. Write a program to do this and to read this data into internal RAM. 10
6. a) Interface 7-segment display with 8051 and write a program to display 0-9 counter with a predetermined delay. 10
- b) Explain implementation of Traffic Light Controller using 8051 microcontroller. 10
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