

(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. | Attempt any four questions- | 20 |
| | a) Define microprocessor and explain microprocessor based computer system. | |
| | b) Draw block diagram of 8051 microcontroller and explain use of I/O ports. | |
| | c) Explain Timer2 in "Capture Mode" with neat diagram. | |
| | d) Write a program to initialize the serial port to operate as an 8-bit UART at 2400 baud. | |
| | e) Write a program to convert FFH hexadecimal number to decimal. | |
| 2. | a) State characteristics of RISC and CISC architecture. | 08 |
| | b) Write a program and draw flow chart to add the first ten natural numbers using 8051 microcontroller. | 08 |
| | c) Draw PCA Timer/Counter Control Register (CCON) format and state each pin function. | 04 |
| 3. | a) State the features of advanced MCS251 microcontroller. | 08 |
| | b) Draw interfacing of ADC and temperature sensor with 8051 microcontroller and write a program to read temperature, convert it to decimal and put it on P0 with some delay. | 12 |
| 4. | a) A square wave is being generated at pin P1.2. This square wave is to be sent to a receiver connected in serial form to this 8051. Write a program to do this. | 10 |
| | b) Draw the diagram to interface external RAM and ROM with 8051 microcontroller. Mention the pins during interfacing and describe in brief. | 10 |

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-2-

5. a) How do you explain with diagram to interface a dc motor with 8051 microcontroller and also write an 8051 program to run the dc motor in both forward and reverse direction with delay? 10
- b) The word "RAJ" is to be burned in the flash ROM location starting from 0400H of microcontroller. Write a program to do this and to read this data into internal RAM locations starting from 60H. 10
6. a) Draw and explain internal port0 structures of 8051 microcontroller. 06
- b) Draw complete circuit diagram for interfacing the LCD module to 8051 μ c. State steps for sending data to the LCD module. 06
- c) Assume that bit P2.2 is used to control an outdoor light and bit P2.5 a light inside a building. Write a program to turn on the outside light and turn off the inside one. 08