

24/11/2015

INST



(3 Hours)

CBGS. Q.P. Code : 5612

[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 .

1. (a) Define and explain evolution of Microprocessor. 5
- (b) Draw and explain block diagram of 8051 microcontroller. 5
- (c) Explain Timer 2 as a Baud Rate generator. 5
- (d) Write a program to convert 9CH hexadecimal number to decimal. 5

2. (a) Assume that the 8051 serial port is connected to the COM port of the IBM PC and on the PC we are using the Hyper Terminal program to send and receive data serially. P1 and P2 of the 8051 are connected to LEDs and switches respectively. Write an 8051 program to
 - (i) Send to the PC the message "We Are Ready",
 - (ii) Receive any data sent by the PC and put it on LEDs connected to P1 and
 - (iii) Get data on switches connected to P2 and send it to the PC serially.The program should perform part (i) once but parts (ii) and (iii) continuously. Use the 4800 baud rate. 10
- (b) Explain the architecture of MCS 151 microcontroller. 10

3. (a) Interface Washing machine with 8051 microcontroller and write a program as per following machine operation - 10
 - (i) Water level select- low, medium, high.
 - (ii) Water inlet- hot, normal water knob.
 - (iii) Program select- heavy, normal, light, dedicate.
 - (iv) Machine ON- indicator.
 - (v) Fill water- hot, normal water inlet.
 - (vi) Agitation control- motor rotate in clock direction, motor rotate in anticlock direction.
 - (vii) Drain- drain valve open.
 - (viii) Spin- spin motor ON/OFF.
 - (ix) Washing complete-indication.
- (b) Write a short note on Port Structure used in 8051 microcontroller. 10

TURN OVER

4. (a) Draw and explain the interfacing of Analog to Digital Conversion (ADC) with 8051 and write a program code to show this conversion. 10
(b) Write assembly language program to generate a square wave with an ON time of 3ms and an OFF time of 10ms on all pins of port0. Assume XTAL of 22 MHz. 10
5. (a) Interface 7-segment display with 8051 and write a program to display 0-9 counter with a predetermined delay. 10
(b) Give comparison between SPI and I²C. 5
(c) State characteristics of RISC architectures. 5
6. (a) In a semester, a student has to take six courses. The marks of the student (out of 25) are stored in RAM locations 47H onwards. Write a program to find the average marks and output it on port1 using 8051 microcontroller. 10
(b) The data pins of an LCD are connected to P1. The information is latched into the LCD whenever its Enable pin goes from high to low. Write an 8051 C program to send "INSTRUMENTATION ENGG" to this LCD. 10