

Con. 5717-10.

lib

(REVISED COURSE)

(3 Hours)

Blom

30/11/10

GT-7602

2

[Total Marks : 100]



- N. B. :** (1) Question No. 1 is **compulsory**.
 (2) Attempt any **four** questions out of remaining **six** questions.
 (3) Draw **neat** diagram wherever **required**.

1. A control system uses a micro-controller board with following specifications:— 20
 - (a) CPU – 8051
 - (b) 16 KB program memory
 - (c) 16 KB Data-memory
 - (d) Two 8-bit I/O ports with handshaking
 - (e) Half duplex serial port.

Draw layout of system clearly showing support chips, signals, memory map and design.
2. (a) Explain different modes of Times or Counter in 8251. Explain related SFRs. 10
 (b) Write a program for 8051 to get square waveform of 1KHz. using Timer 1 mode 1. Assuming x'tal frequency of 11.092 MHz. 10
3. (a) Explain the architecture of 8051 micro-controller with a neat diagram. 10
 (b) Draw and explain the port structure of all the ports of 8051. 10
4. (a) Explain the following instructions of 8051 :— 10
 - (i) MOVX A, @DPTR.
 - (ii) MOVC A, @DPTR.
 - (iii) XRL A, #n.
 - (iv) CJNE @ Rp, #n, radd
 - (v) DJNZ Rn, radd.
- (b) Explain how to interface a 2-digit seven segment display using 8051 microcontroller. 10
5. (a) What is an "Embedded System" ? Discuss about their characteristics and their typical hardware components. 10
 (b) Explain the "Structural Units in a Processor". Explain about the term "Branch Penalty". 10
6. (a) Explain the terms w.r.t. Embedded system :— 10
 - (i) Array
 - (ii) Circular queue
 - (iii) Pipe
 - (iv) Table and hash-table
- (b) Explain serial communication using 'I2C', 'CAN' & 'USB'. 10
7. Write short notes on :— 20
 - (a) Serial port in model 1 of 8051
 - (b) Interrupts in 8051
 - (c) Power saving modes of 8051
 - (d) Device-drivers
 - (e) Deadline and Interrupt Latency.
