2062
B.E. (Information Technology) Eighth Semester
IT-802: Embedded System Design

Time allowed: 3 Hours

Max. Marks: 50

NOTE: *Attempt* <u>*five*</u> *questions in all, including Question No. I which is compulsory and selecting two questions from each Section. All questions carry equal marks.*

x-x-x

Q1. Attempt the following:-

a) What are embedded systems? Support your answer with example.

b) Differentiate between HARVARD and VON NEUMAN architecture.

c) What is the total maximum address range of internal RAM and ROM of 8051?

d) What is the size of TBLPTR register in PIC?

e) Write instruction to add 88H and 94H and show the status of flags for PIC after execution.

f) List the pointers used to access ROM in PIC.

g) Which bit must be set in TCON register in order to start the "Timer 0" while operating in Mode 0?

h) Name the timer responsible for setting baud rate in 8051.

i) What is the nature of real time operating system?

j) What do you mean by task states in contest to RTOS?

(10×1)

Section- A

Q.2 a) Discuss the architecture of 8051 in detail

(5)

b) Write a program in 8051, to create a square wave of 66% duty cycle on bit 3 of port 1.

(5)

Q.3

a) Differentiate between CISC V/S RISC processor and explain in detail by taking suitable example

(5)

b) Compare microprocessor and microcontroller and give few examples of each. (5)

Q.4

a) In 8051, assume that XTAL=11.0592 MHz. What should be the value in timer register, if time delay of 10ms (milli second) has to be achieved. W.A.P. for timer to create a pulse width of 10ms on P 2.3 (5)

b) W.A.P. to transfer "X" serially at 9600 baud rate continuously in 8051. (5)

Section- B

Q.5

a) List out some features of PIC 16C6X/7X microcontroller and its memory organization. (5)

b) Write instructions to logically AND bytes 97H and 68H and identify the status of the flags for PIC Controller (5)

Q.6

a) What is the difference between real time operating system and general purpose operating system (5)

b) Explain the following terms w.r.t RTOS

1) Kernel and Its Types   2) Different time management tasks done by RTOS (5)

Q.7

a) Explain real time scheduling and its taxonomy. (5)

b) Explain

1) Round robin.

2) Round robin with interrupts. (5)

x-x-x