B.Tech. IN ELECTRICAL ENGINEERING (BTELVI)

Term-End Examination

June, 2011

BIEE-010 : MICROCONTROLLERS

Time : 3 hours   *Maximum Marks : 70*

*Note :   Attempt **any five** questions. Question No. 7 is compulsory. Assume data wherever not provided.*

1. (a) Draw the Harvard and Non Neuman CPU   7
         architecture and explain it ?

    (b) Compare and contrast the various members   7
         of the 8051 family ?

2. (a) Draw   the   pin   diagram   of   8051   7
         microcontroller and explain the purpose of
         each pin of the 8051 microcontroller.

    (b) Explain conditions that determine each   7
         conditional jump instruction in brief.

3. (a) Describe the various modes of 8051 timer ?   7

    (b) How are timers 0 and 1 started and stopped   7
         by instructions ?

4. (a) Describe serial communication features of   7
the 8051?

(b) Write a program to transfer a letter 'Y'   7
serially at 9600 baud continuously, and also
to send a letter 'N' through port 0, which is
connected to a display device ?

5. Write a C program using interrupts to do the   14
following.

(a) Generate a 10,000 Hz frequency on $P_{2.1}$
using TO 8-bit auto-reload,

(b) Use timer 1 as an event counter to count
upto 1Hz pulse and display it on P0. The
pulse is connected to Ex-1'

6. Write a C program that continuously gets a single   14
bit of data from $P_{1.7}$ and sends it to $P_{1.0}$ in the
main, while simultaneously.

(a) Creating a square wave of 200 μs period
on pin $P_{2.5}$ and

(b) Sending letter 'A' to the serial port. Use
timer 0 to create the square wave. Assume
that XTAL=11.0592 MHz. Use the 9600
baud rate.

7. Write short notes on *any two* of the following.
                                            7x2=14

(a) Interfacing 8051 to LCD

(b) Interfacing 8051 to DC motor

(c) 8051 interfacing with stepper motor

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