

**B.Tech. IN ELECTRICAL ENGINEERING  
(BTELVI)**

**Term-End Examination**

**December, 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.*

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|----|-----|---|----|
| 1. | (a) | Draw the Harvard and Von Neumann CPU architecture and explain it.   | 7  |
|    | (b) | What are the major differences between 8051 and 8052 microcontrollers ?   | 7  |
| 2. | (a) | What are the major registers of the 8051 and show their use with the simple instructions MOV and ADD ?                | 10 |
|    | (b) | What is the difference between Polling and interrupts ? Explain the various interrupts of 8051.                       | 4  |
| 3. | (a) | Compare serial Vs parallel communication and list the advantages of serial communication over parallel communication. | 7  |
|    | (b) | Describe the various modes of 8051 timers.  | 7  |

4. (a) Find the timer clock frequency and its period for various 8051 based system, with the following crystal frequency (i) 12 MHz (ii) 16 MHz (iii) 11.0592 MHz. 7
- (b) How are timer '0' and 1 started and stopped by instructions ? 7
5. (a) Program the 8051 in C-Language to receive bytes of data serially and put them in P1, set the baud rate at 4800, 8 bit data, and 1 stop bit. 7
- (b) Interface a 4x4 keypad to 8051 using C-Language and assembly Language. 7
6. (a) Explain the process of data framing. 7
- (b) Explain the purpose of each pin of the 8051. 7
7. Write short notes on *any two* of the following.
- (a) Interfacing 8051 to DC motor. 7x2=14
- (b) Interfacing 8051 to stepper motor.
- (c) 8051 interfacing with parallel and serial ADC.