

**B.Tech. - VIEP - ELECTRONICS AND
COMMUNICATION ENGINEERING
(BTECVI)**

Term-End Examination

June, 2016

00316

BIEL-008 : MICROCONTROLLERS

Time : 3 hours

Maximum Marks : 70

Note : Attempt any seven questions. All questions carry equal marks. Missing data maybe suitably assumed.

1. (a) Differentiate between Microprocessors and Microcontrollers. 5
- (b) Explain the Harvard and Von Neumann architectures. 5
2. List the pins of 8051 microcontroller. Explain the function of each pin briefly. 10
3. What do you mean by addressing mode ? Explain the different addressing modes of 8051 with minimum two suitable examples. 10

4. Write an ALP to multiply the unsigned number in register R2 by the unsigned number on port-1 and put the result in external RAM locations 41H (MSB) and 32H (LSB). 10
5. Describe the various operating modes of timer/counter programming in 8051, and associated control registers. 10
6. Explain the functions of the following instructions : 10
- (a) CJNE
 - (b) DJNZ
 - (c) SJMP
 - (d) NOP
 - (e) JNB
7. (a) Draw the connection diagram of 8051 with ADC. 5
- (b) Explain the concept of Look up table. Where is it situated ? How does 8051 use Look up table ? Explain by instruction. $2+1+2=5$
8. (a) Discuss how the CPU uses the stack to store, call opcode and return addresses. 5
- (b) Differentiate between Hardware interrupt and Software interrupt used in 8051. 5

9. Write an ALP program using timer 0 that will delay exactly 0.10000 milliseconds ± 1 microseconds from the time. The timer starts until it is stopped. Assume crystal frequency is 12 MHz. 10
10. Write short notes on any *two* of the following : $2 \times 5 = 10$
- (a) 8051 serial communication
 - (b) Programming timer interrupt
 - (c) Calls and Subroutines
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