

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

Term-End Examination

00173

December, 2018

BIEL-008 : MICROCONTROLLERS

Time : 3 hours

Maximum Marks : 70

Note : Attempt any **seven** questions. Assume suitable data, if any. Use of scientific calculator is allowed.

1. Draw the generalized functional block diagram of a microcontroller specifying working of each block. 10

2. With the help of neat diagram, explain the working of internal architecture of 8051. 10

3. Explain the following instructions mentioning their address mode and byte size : 10
 - (a) XCHD A,
 - (b) MOVC A, @A+DPTR
 - (c) SUBB A, #55h
 - (d) DA A
 - (e) JBC bit, rel

4. With the help of suitable example, explain the different types of JUMP and CALL instructions in 8051. 10
5. (a) What are interrupts ? Specify vector location of interrupts in 8051. 5
- (b) Write the bit patterns for TMOD and TCON registers and explain briefly. 5
6. (a) Write a subroutine which checks the content of location 20H. If it is a positive number, the subroutine finds its TWO's complement and stores it in same location and returns. 5
- (b) What are assembler directives ? Explain any four of them. 5
7. What is the difference between timer and counter operation of 8051 ? How will you start/stop the timer/counter of 8051 when 10
- (a) Gate control is not used ?
- (b) Gate control is used ?
8. How will you interface stepper motor with 8051 microcontroller ? Explain with the help of block diagram and necessary interfacing signals. 10

9. (a) Explain the functions of the pins of 9-pin RS – 232 connector. 3
- (b) Interface LCD display to 8051 and write ALP to display message 'VERY GOOD'. 7
10. Write short notes on any *two* of the following : $2 \times 5 = 10$
- (a) PWM
- (b) Data Types and Time Delay in 8051
- (c) RISC and CISC
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