

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

00629

**Term-End Examination
December, 2014**

BIEL-008 : MICROCONTROLLERS

Time : 3 hours

Maximum Marks : 70

*Note : Attempt any **seven** questions. Assume suitable missing data, if any.*

1. (a) Compare microprocessor and microcontroller. Is 8051 a Harvard architecture or Von-Neumann architecture ? Justify the answer. 5
- (b) Explain the functions of the following pins of 8051 : 5
 - (i) RxD
 - (ii) XTAL2
 - (iii) RST
2. With the help of block diagram, explain the architecture of 8051 microcontroller. 10
3. Explain different types of MOV and JUMP instructions in 8051 with the help of suitable examples. 10

4. (a) Give the difference between RET and RET1 instruction. State why we cannot use RET instead of RET1 as the last instruction in ISR. 5
- (b) Assume that INT1 pin is connected to a switch that is normally high. Write a program to turn on the LED whenever it goes low. LED is connected to P 1.3 and is normally OFF. When it is turned ON it should stay ON as long as the switch is pressed low.
5. (a) What are the functions of the following pins : 5
- (i) ALE
 - (ii) \overline{EA}
 - (iii) \overline{PSEN}
 - (iv) TxD
- (b) What is the meaning of Quasi-bi-directional port ? Why is PORT 0 of 8051 true bidirectional ? 5
6. Define subroutine. What will happen on receiving a call to the subroutine ? What is the content of PC at this time ? 10
7. Which flags get altered by the following instructions ? Explain with an example : 10
- (i) ADD
 - (ii) SUBB
 - (iii) JC
 - (iv) DJNZ
 - (v) MUL
 - (vi) DIV

8. (a) Explain interrupt vector table. Why is it used? 5
- (b) Justify the difference between a directive, an operation and an instruction with suitable example. 5
9. Draw the format of SCON register and explain the function of each bit in detail. 10
10. Write short notes on any *two* of the following : $2 \times 5 = 10$
- (i) PUSH, POP operation
 - (ii) RS-232 interfacing with 8051
 - (iii) Interrupt types and their priority in 8051
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