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1**B.Tech. ELECTRONICS AND  
COMMUNICATION ENGINEERING  
(BTECVI)****Term-End Examination****December, 2013****BIEL-008 : MICRO CONTROLLERS***Time : 3 Hours**Maximum Marks : 70*

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**Note :** *Question No. 10 is compulsory. Answer any six other questions. Assume data wherever it is not provided.*

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1. (a) What are the differences between microprocessors and microcontrollers ? 5  
(b) Explain the alternate function of Port 3 in 8051. 5
2. (a) What should be the criteria to choose a microcontroller ? 5  
(b) Copy the bytes in TCON to register R2 using at least four different methods. Is TCON register bit addressable ? 5
3. (a) Discuss bit level and byte level logical operations. 5  
(b) Draw and explain the internal RAM structure of 8051. 5
4. (a) Write a 8051 program to toggle all the bits of Port P1 continuously with some delay in between. Use timer 0, 16 bit mode to generate the delay. 7

- (b) With XTAL=11.0592 MHz, find the TH<sub>1</sub> value needed to generate the following baud rates. 3
- (i) 9600
- (ii) 1200
5. (a) What is the interrupt priority upon reset in 8051 ? Can we change the interrupt priority and how ? 5
- (b) Explain with a diagram the 8051 connections to ADC 0804 with self clocking. 5
6. (a) Write an 8051 C program to create a frequency of 2500Hz on Pin P2.7. Use Timer 1, mode 2 to create the delay. 7
- (b) What is the significance of RET instruction in a subroutine program ? 3
7. (a) List all the conditional and unconditional JUMP instructions in 8051. 5
- (b) What are the major differences between the 8051 & 8031 Microcontroller ? 5
8. (a) How is external memory interfaced with a microcontroller ? Explain with an example. 6
- (b) Describe the function of the following instructions : 4
- (i) MOVA,@R<sub>1</sub>
- (ii) ACALL 16 bit add.
9. (a) A switch is connected to Pin P2.7. using 8051, write a program to monitor the status of SW and perform the following. 7
- (i) If SW = 0, the DC motor moves clockwise.
- (ii) If SW = 1, the DC motor moves counter clockwise.
- (b) Discuss the function of DPTR and PC register in 8051. 3

10. Attempt any two. Write short notes on : 5+5
- (a) Harvard and Von-Neumann CPU structure.
  - (b) Programming 8051 in C.
  - (c) Counter/Timer in 8051.
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