

**GANPAT UNIVERSITY**  
**B.TECH. SEM. VII BM & I ENGINEERING**  
**REGULAR EXAMINATION NOV-DEC-2012**

**SUBJECT WITH CODE: - BME-703: MICROCONTROLLER APPLICATIONS**

**TIME: - 3 HOURS**

**TOTAL MARKS-70**

**INSTRUCTION:-**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

**Section-I**

- Que.-1** A) Draw and explain block Diagram of 8051 microcontroller. [06]
- B) Find the number B7 is placed somewhere in external RAM locations between 0100H and 0200H. Find the address of that location and store it in any location of Internal RAM. [06]
- OR**
- Que.-1** A) Explain external data moves and code memory read only data moves. [06]
- B) Arrange the contents of RAM address 20H to 24H into descending order. [06]
- Que.-2** A) Explain call and subroutines concepts with instructions. [06]
- B) Assume that XTAL = 11.0592 MHz. What value do we need to load the timer's register if we want to have a time delay of 5 ms (milliseconds)? Show the program for timer 0 to create a pulse width of 5 ms on P2.3. [05]
- OR**
- Que.-2** A) Assume that register A has packed BCD, write a program to convert Packed BCD to two ASCII numbers and place them in R2 and R6. [05]
- B) Write an assembly language program for generating 2 KHz square wave of 25% duty cycle at port P1.1 for that use timer 0 & crystal frequency 12 MHz. [06]
- Que.-3** A) Draw 8051 connection to DAC 0808 and write an assembly language program for generating  $V_{out} = 2\sin\theta$  output waveform. [06]
- B) Assuming that clock pulses are fed into pin T1, write a program for counter 1 in mode 2 to count pulses & display the state of the TL1 count on port 2. [06]



**Section-II**

- Que.-4 A) Explain internal RAM organization of 8051. [06]  
 B) Square the contents of R5 and put the result in R0 (high byte) & R1 (low byte) without use of multiplication instruction. [06]

**OR**

- Que.-4 A) Assume that 5 BCD data items are stored in RAM locations starting at 40H. Write a program to find the sum of all the numbers. The result must be in BCD. [06]  
 B) Draw and Explain Port 0 and port 1 pin configuration. [06]

- Que.-5 A) Explain various modes of Timer. [05]  
 B) Use R4 (LSB) and R5 (MSB) as a single 16-bit counter, and decrement the pair until they equal 0000H. [06]

**OR**

- Que.-5 A) Write a program that will swap the bits of register R5 like. Swap bits 0 & 1 with bits 2 & 3 and bits 4 & 5 with bits 6 & 7. [05]  
 B) Explain all Incrementing and Decrementing instructions with example. [06]

- Que.-6 A) Write assembly language program that display 0 to 9 digits continuously with 10 ms delay for the 7 segment interfacing with 8051. [08]  
 B) Draw the connection of Interfacing any temperature sensor with Microcontroller using ADC. [04]

**END OF PAPER**