**TIMER ASSIGNMENT**

Q 1. Write a C Program to toggle all bits of PORTB continuously with some delay. Use Timer0, normal mode and no prescaler options to generate delay.

Q 2. Write a C program to toggle only bit of PORTB.4 bit continuously after every 70 us. Use Timer0, normal mode and 1:8 prescaler to generate delay. Assume XTAL=8MHz.

Q 3. Write a C program to toggle only bit of PORTB.4 bit continuously after every 2ms. Use Timer1, normal mode and no prescaler to generate delay. Assume XTAL=8MHz.

Q 4. Write a C program to toggle only bit of PORTB.4 bit continuously after every 1 s. Use Timer1, normal mode and 1:256 prescaler to generate delay. Assume XTAL=8MHz.

Q 5. Assuming that a 1 Hz clock pulse is fed into pin T0, use the TOV0 flag to extend Timer0 to a 16-bit counter and display the counter on PORTC and PORTD.

Q 6. Assume that a 1 Hz external clock is being fed into pin T1 (PB1). Write a C program for Counter 1 in rising edge mode to count the pulses and display the TCNT1H and TCNT1L registers on PORTD and PORTC, respectively.

**SERIAL COMMUNICATION**

Q 1. Write a C function to initialize the USART to work at 9600 baud, 8-bit data, and 1 stop bit. Assume XTAL = 8 MHz.

Q 2. Write a C program for the AVR to transfer the letter ‘G’ serially at 9600 baud, continuously. Use 8-bit data and 1 stop bit. Assume XTAL= 8 MHz.

Q 3. Write a program to send the message “The Earth is but One Country” to the serial port continuously. Using the settings of Q2.

Q 4. Program the AVR in C to receive bytes of data serially and put them on PORTA. Set the baud rate at 9600, 8-bit data and 1 stop bit.

Q 5. Write a AVR C program to receive a character from the serial port. If it is ‘a’ – ‘z’ change it to capital letters and transmit it back. Use the settings of above ques.