

BE Semester-VI (Biomedical Engineering) Question Bank

(BM-601 Microcontroller & Applications)

All questions carry equal marks (10 marks)

Q.1	Draw & explain the block diagram of 8279 - programmable keyboard/display interface device.
Q.2	Draw & explain the block diagram of 8253 (8254) programmable interval timer.
Q.3	Draw & explain the block diagram of 8259A programmable interrupt controller device.
Q.4	Draw & explain the architecture of 8051 microcontroller.
Q.5	Draw & explain the programming model of 8051 microcontroller.
Q.6	Explain the functioning of 8051 port pin circuit with neat diagram.
Q.7	Interface 4K RAM & 16K EPROM with 8051 microcontroller. Also show the necessary control signals & oscillator circuit.
Q.8	Interface 64K EPROM & 16K RAM with 8051 microcontroller with necessary control signals & circuits.
Q.9	Explain different modes of timer operation with neat diagram.
Q.10	Explain TCON & TMOD SFRs with diagram
Q.11	Explain modes of serial communication with diagram.
Q.12	Explain SCON & PCON SFRs with diagram.
Q.13	Define interrupt. Explain types of interrupt with their priorities.
Q.14	Explain IE & IP SFRs with diagram.
Q.15	Draw & explain PSW register. Also show how the different flags are affected.
Q.16	List & explain the addressing modes of 8051 microcontroller.
Q.17	Interface 8 LEDs with 8051 microcontroller using necessary circuits & control signals & write an assembly language program to blink these LEDs.
Q.18	Interface 7 segment display with 8051 microcontroller using necessary circuits & control signals & write an assembly language program to display "H" on it.
Q.19	Interface LCD with 8051 & write an assembly language program to display "Hello" on it.
Q.20	Draw & explain the functioning of pins of typical LCD.
Q.21	Explain different LCD command codes.
Q.22	Explain the functioning of pins of ADC0804.
Q.23	Draw & explain the interfacing of ADC0804 with 8051 microcontroller.
Q.24	Draw & explain the interfacing of DAC0808 with 8051 microcontroller.
Q.25	Draw & explain the interfacing of stepper motor with 8051 microcontroller with suitable assembly language program.
Q.26	Write an ALP to find sum of 8 data stored in RAM location starting from 50H. Store result in register R0(LSB) & R1(MSB) of bank-1.
Q.27	Write an ALP to blink lower four LED and higher four LED alternately which are connected to Port-1 with ON and OFF period of 200msec. Assume crystal frequency of 8MHz.
Q.28	Write an ALP to add the unsigned number found in internal RAM location 25H, 26H & 27H together & put the result in RAM location 30H(LSB) & 31H(MSB).
Q.29	Write a program to multiply two 16-bit numbers.
Q.30	Write a program to add block of data stored in internal/external memory locations.
Q.31	Write an ALP to generate square wave with ON period of 5msec and OFF period of

	7.5msec on all pins of Port-0 using timer-0. Assume crystal frequency of 12MHz.
Q.32	Write an ALP to generate a square wave of 50% duty cycle on pin P1.5. Use timer-0 to generate time delay. Assume crystal frequency of 12 MHz.
Q.33	Write an ALP to design a counter for counting the pulses of an input signal. The pulses to be counted are fed on pin P3.4. Crystal frequency is 22 MHz.
Q.34	Write a program to transfer a letter 'Y' serially at 9600 baud rate continuously and also to send a letter 'N' through Port-3 which is connected to display device.
Q.35	Write a program to generate two square waves (i) 5 KHz at P1.3 and (ii) 25 KHz at P2.3. Assume crystal frequency of 22 MHz.
Q.36	Write a program in which 8051 reads data from Poort-1 and writes it to Port-2 continuously while giving a copy of it to the serial com port to be transferred serially. Assume crystal frequency 11.0592 MHz and baud rate 9600.
Q.37	Write an ALP to generate a square wave with ON time of 3msec and OFF time of 10msec on all pins of Port-0. Assume crystal frequency of 22 MHz.
Q.38	A switch is connected to P1.7. Write a program to check the status of switch and perform the following : 1. if switch = 0, send letter "N" to P2. 2. if switch = 1, send letter "Y" to P2.
Q.39	Write an ALP to divide the number in RAM location 15H by the number in RAM location 16H. Put the quotient in external RAM location 7CH & remainder in 7DH.
Q.40	Write a program to multiply two 8-bit numbers stored in registers or internal/External memory locations.