

QUESTION BANK-GUJARAT UNIVERSITY

MICROPROCESSOR AND ITS INTERFACING

B.E. Semester-4 (Inst. & Control)

Each question carry 10 marks

Q-1	With the help of neat diagram explain the architecture of 8085 microprocessor in detail. Discuss its flag register.
Q-2	Explain the sequence of events during the execution of the CALL instruction by 8085 processor with the help of neat timing diagram.
Q-3	Explain the sequence of events during the execution of the RET instruction by 8085 processor with the help of neat timing diagram.
Q-4	Write an assembly language program with comment lines. An 8-bit number is stored in memory location C100H. Count number of ones (i.e. 1) in this byte and store this count in memory location C200H.
Q-5	Write an assembly language program with comment lines. An array of bytes is stored starting from memory location C301H. Length of this array is stored in memory location. C300H. Count how many bytes are greater than 70H. Store this count in memory location C400H.
Q-6	Write an assembly language program with comment lines. An array of bytes is stored starting from memory location C501H. Length of this array is stored in memory location C500H. If 1st and 8th bit of the byte is one then store that byte in memory location starting from C600 onwards without affecting bytes of source array.
Q-7	Explain the following instructions with suitable example of each (Any five) (i) LXI (ii) MOV (iii) SHLD (iv) LDAX (v) CMP (vi) STA
Q-8	Explain arithmetic and logical instruction of 8085 microprocessor in detail.
Q-9	Specify the contents of the registers and the flag status as the following instructions are executed. i. MVI A, 00H ii. MVI B, F8H iii. MOV C, A iv. MOV D, B v. HLT (b) Write instructions to load the hexadecimal number 65H in register C and 92H in accumulator A. Display the number 65H at PORT0 and 92H at PORT1.
Q-10	Why the lower order address bus is multiplexed with data bus? How they will be de-multiplexed? With the help of figure explain demultiplexing of address/data bus.
Q-11	Write an 8085 assembly language program using minimum number of instructions to add the 16 bit no. in BC, DE and HL. Store the 16 bit result in DE pair.
Q-12	Draw and explain the timing diagram of memory write cycle with example.
Q-13	Draw and explain the timing diagram of opcode fetch cycle.

Q-14	Define addressing modes. With suitable examples explain 8085 addressing modes in detail.
Q-15	Write an 8085 assembly language program to generate a software time delay of 100ms.
Q-16	Explain the 8085 microprocessor interrupt system in detail.
Q-17	With suitable examples explain how I/O devices are connected using memory mapped I/O and peripheral I/O.
Q-18	Compare memory mapped I/O and peripheral mapped I/O.
Q-19	Design a microprocessor system to interface an 8K × 8 EPROM and 8K × 8 RAM.
Q-20	Draw block diagram of 8155 programmable input/output ports. Explain control word definition of the same.
Q-21	Design an interface circuit needed to connect DIP switch as an input device and display the value of the key pressed using a 7 segment LED display. Using 8085 microprocessor system, write a program to implement the same.
Q-22	Explain the stack memory of 8085 microprocessor with the help of instructions and neat diagrams in detail.
Q-23	Write short note on vectored interrupts of 8085 microprocessor.
Q-24	Draw the microprocessor bus timing for the instruction STA 4500H and explain it.
Q-25	What do you mean by looping, counting and indexing? Explain them with appropriate example.
Q-26	Classify instructions based on byte size and give two examples of each to explain the same.
Q-27	An 8155 is interfaced with 8085 having port A address of 90H. Write a program to turn on port A LEDs sequentially (i.e. LED0 on-> LED1 on-> LED2 on.....LED7 on->LED0 on.....) after every 1 second. At a time single LED should remain on. Use delay subroutine in your program. Assume crystal frequency of 4MHz. Show your calculation of delay.
Q-28	Interface 8-bit DAC with microprocessor 8085 having port address FFH. Write a program to generate saw tooth wave using DAC.
Q-29	Explain different modes of 8253 programmable interval timer in detail.
Q-30	What is the need of interrupt in microprocessor? Explain restart instruction with the help of timing and circuit diagram.
Q-31	Explain successive approximation ADC in detail.
Q-32	Explain serial communication using microprocessor in detail.
Q-33	Design a seven segment LED output port with the device address C6H using decoder and logic gates. Write instruction to display digit 5 at the port.
Q-34	Draw and explain block diagram of programmable interval timer 8253.
Q-35	Explain the timing diagram of MVI A,50H instruction of 8085 microprocessor in detail.
Q-36	Explain timing diagram of OUT instruction of 8085 microprocessor in detail.

Q-37	Explain dual slope ADC with the help of neat diagram in detail.
Q-38	Draw and explain block diagram of 8259A programmable interrupt controller in detail. Explain control word definition of the same.
Q-39	Draw and explain block diagram of 8251A programmable communication interface in detail.
Q-40	Interface multiplexed 4 digit seven segment display with 8085 microprocessor and write a program to display BCD number 5432 on it.

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