

QUESTION BANK

UNIT – I

PART A

1. What is the function of program counter in 8085 microprocessor?
2. List the control and status signals of 8085 microprocessor and mention its need.
3. What is trap interrupt and its significance?
4. Define the function of parity flag and zero flag in 8085?
5. Draw the schematic of latching low-order address bus in 8085 microprocessor.
6. What is the need of ALE signal in 8085 microprocessor?
7. What is memory mapping?
8. What is tri-state logic?
9. What is stack and what is the function of stack pointer?
10. Differentiate between software and hardware interrupts.
11. What are the different machine cycles in 8085 microprocessor?
12. What is the function of ALE signal?
13. What are the flags available in 8085 processor?
14. List the steps involved in interfacing a memory to the 8085 microprocessor.
15. Specify the size of data, address, memory word and memory capacity of 8085 microprocessor.
16. State the functions of the two status signals S0 and S1 in 8085 Microprocessor.
17. Specify the control signals commonly used by the 8085MPU.
18. When an Auxiliary carry flag is set in 8085 microprocessor?
19. The memory address of the last location of a 1Kbyte memory chip is given as FBFFH. Specify the starting address
20. What are the interrupts available in 8085?

PART B

1. Explain with a neat block diagram the architecture of 8085 microprocessor. (16)
2. Write about the pin configuration of 8085 processor and explain them in detail. (16)

3. Briefly explain memory interfacing techniques used in 8085 microprocessor (16)
4. (i) Describe the interrupts of 8085 Microprocessor. (8)
(ii) Draw and explain the flag register of 8085 in brief. (8)
5. Draw and explain the timing diagram for MVI A,32H (16)
6. (i) Explain the bus structure of 8085 processor. (8)
(ii) Draw the timing diagram for memory read cycle and explain. (8)
7. Explain with flow diagram how an instruction is fetched and executed in an 8085 processor. (16)
8. Explain the I/O read and write operation of 8085 processor with timing diagram (16)
9. Briefly explain input and output interfacing techniques used in 8085 microprocessor (16)
10. Design an interface circuit for microprocessor controlled system to meet the following specifications. (16)
 - (a) 74LS138: 3to 8 decoder
 - (b) 2732 (4K x 8): EPROM- address range should begin at 0000h and additional 4K memory space should be available for future expansion.
 - (c) 6116 (2K x 8): CMOS R/W memory

UNIT II

PART A

1. What are the different machine control instructions used in 8085 microprocessor?
2. What is an Instruction?
3. What is the function of stack?
4. Differentiate cascade stack and memory stack.
5. What are the types of addressing mode in 8085 microprocessor?
6. What is the use of branching instructions? Give example.
7. Why do we need look-up table?
8. How are the 8085 instructions classified according to the functional categories?
9. What is the function of SIM Instruction in 8085?
10. Differentiate CALL instruction from JUMP instruction.
11. Write the difference between opcode and operand.
12. Explain the purpose of the I/O instructions IN and OUT.
13. What is the significance of 'XCHG' and 'SPLH' instructions?
14. Write the operation carried out when 8085 executes RST0 instruction.
15. What are the use of CALL and RET instructions of 8085.
16. What is indirect addressing?
17. State the function of given 8085 instructions: *JP*, *JPE*, *JPO*, and *JNZ*.
18. How is PUSH B instruction executed? Find the status after execution.
19. What are the different addressing modes of 8085?
20. Write the stack related instructions in 8085 microprocessor.

PART B

1. (i) Describe with suitable examples the data transfer instructions in 8085 microprocessor. (8)
(ii) Write an 8085 assembly language program to sort numbers ascending orders. (8)
2. With example explain the different addressing modes of 8085 and the different types of instruction. (16)
3. (i) Describe with suitable example the operation of stack. (8)
(ii) Describe the categories of instructions used for data manipulation in 8085 μ p (8)
4. (i) Describe with a suitable 8085 assembly language program the use of subroutine instructions. (8)
(ii) Give two examples for data transfer instructions, arithmetic instructions, logic instructions and branch instructions (8)
5. (i) Write a program with a flowchart to multiply two 8-bit numbers. (8)
(ii) Describe with suitable examples the data transfer, loading and storing instructions. (8)
6. (i) Compare the similarities and differences of CALL and RET instructions with PUSH and POP instructions. (8)
(ii) Write an assembly language program based on 8085 microprocessor instruction set to search the smallest data in a set. (8)
7. Explain the operations carried out when 8085 executes the instructions
(i) MOV A, M (ii) XCHG (iii) DAD B (iv) DAA (16)
8. (i) Explain the loop structure with counting and indexing in 8085 programming. (8)
(ii) Write an 8085 program to count the number of even and odd numbers in a given set of numbers. (8)
9. Explain how software delays can be implemented using counters. (16)
10. (i) Explain the process of writing assembly Language program with the help of example.(10)
(ii) What do u mean by hand assembly? Explain with the help of example. (6)

UNIT III

PART A

1. What are the addressing modes of 8051 microcontroller?
2. Which ports of 8051 are bit addressable?
3. Define microcontroller.
4. What are the main features of 8051 microcontroller?
5. Draw the flowchart for programming of serial port of 8051.
6. List the on-chip peripherals of 8051 microcontroller.
7. List the alternative functions assigned to Port 3 pins of 8051 microcontroller.
8. Mention the size of DPTR and stack pointer in 8051 microcontroller.
9. What are the applications of 8051 microcontroller?
10. What is meant by SFR in 8051? Give an example.
11. What are the flags available in 8051?

12. Name the interrupts available in microcontroller 8051.
13. Why does Port 0 needs pull-up resistors?
14. Distinguish between microprocessor and microcontroller.
15. List the advantages of microcontroller over microprocessor.
16. What is the function of SM2 bit in the SCON register of 8051?
17. Explain the use of interrupt enable register in 8051 microcontroller
18. Write the vector address and priority sequence of 8051 interrupts?
19. How is stack implemented in 8051?
20. Quantify the number of register banks in 8051 and say how the CPU knows which bank is currently in use.

PART B

1. Explain with a neat block diagram the architecture of 8051 microcontroller. (16)
2. Briefly explain about interrupts used in 8051 microcontroller. (16)
3. (i) Draw the data memory structure of 8051 microcontroller and explain. (8)
(ii) Explain with block diagram how to access external memory devices in an 8051 based system. (8)
4. Explain in detail pin diagram of 8051 microcontroller. (16)
5. Explain how serial communication is performed in 8051 microcontroller. (16)
6. Discuss about the organization of internal RAM and special function registers of 8051 microcontroller in detail. (16)
7. (i) Explain in detail the different methods of memory address decoding in 8051. (8)
(ii) Explain the operation of stack in 8051. (8)
8. Explain the timer/counter functional unit of microcontroller 8051 with relevant diagrams. (16)
9. Discuss in detail, the hardware and software support provided by 8051 for serial communication. (16)
10. Briefly explain the internal port structure of 8051 microcontroller. (16)

UNIT IV

PART A

1. What are different peripheral interfacing used with 8085 microprocessor?
2. What are the output terminals in USART 8251?
3. Draw the 3-bit digital to analog converter block and plot its analog output.
4. Draw the 'Mode Word' format of 8251 USART.
5. What are the applications of D/A converter interfacing with 8255?
6. What is keyboard interfacing?
7. State the use of ISR and PR registers in 8259 PIC.
8. What are the different ways to end the interrupt execution in 8259 programmable interrupt controller?

9. Define scan counter.
10. What is the function of scan section in 8279 programmable keyboard/display controller?
11. List the operation modes of 8255.
12. What is handshaking and what are handshake signals?
13. Give the operating modes of 8259A?
14. What is the cascade mode of 8259 programmable interrupt controller?
15. What is an USART?
16. Explain the working of receiver part of USART.
17. What is baud rate?
18. What is key bouncing?
19. How key bouncing is done by software?
20. What is the difference between two key lockout and N-key rollover modes in 8279?

PART B

1. Draw the Block diagram of 8255(PPI) and explain its various operating modes. (16)
2. Discuss the various modes of operation of the programmable interval timer 8254. (16)
3. Describe how 8279 keyboard and Display controller is interfaced to 8085 or 8051. (16)
4. Draw the Block diagram of 8259(PIC) and explain the initialization command words. (16)
5. Explain how the serial data transfer can be performed using 8251 USART. (16)
6. Draw and describe the interfacing of A/D and D/A converter interfacing to 8085 μ p. (16)
7. (i) Explain the operation of 8255 PPI Port A programmed as input and output in mode 1 with necessary handshaking signals. (8)
(ii) Explain the parallel communication between two processors using mode 2 of 8255. (8)
8. Draw the architecture of DMA controller 8237 and explain (16)
9. Explain the seven segment LED interface with microprocessor. (16)
10. With a neat Diagram explain the internal architecture of keyboard and display controller IC-8279. (16)

UNIT V

PART A

1. How is pulse generated from microcontroller for stepper motor control?
2. Why do we need opto-isolator circuit between microcontroller and the stepper motor?
3. What is the operation of the given 8051 microcontroller instructions: XRL A, direct?
4. What are the main different operations performed by Boolean variable instructions of 8051?
5. Name any four bit manipulation instructions in microcontroller 8051.
6. Write the I/O related instructions in microcontroller 8051.
7. Explain about the instruction DJNZ.
8. List the different types of 8051 instructions.
9. What are the addressing modes supported by 8051?

10. Give an example for DA instruction of 8051 microcontroller.
11. How can you perform multiplication instructions in microcontroller 8051?
12. Write an 8051 program to divide two 8-bit numbers.
13. What is the operation carried out when 8051 executes the instruction `MOVC A,@A+DPTR`?
14. Write about the jump statement?
15. Specify the addressing mode followed in the following instructions: `MOV R1,#02H` and `MOV R1,2`
16. Differentiate the given 8051 instructions: `MOVC` and `MOVX`
17. Explain the instructions `:LJMP` and `SJMP`
18. How does 8051 differentiate between the external and internal program memory?
19. Write about `CALL` statement in 8051?
20. How `DIV AB` instruction works in an 8051 microcontroller?

PART B

1. Describe with a neat diagram the stepper motor control using microcontroller. (16)
2. Explain with a neat diagram the closed loop control of servomotor using microcontroller. (16)
3. How to interface a 4 x 4 matrix keyboard using 8051 microcontroller and explain how to identify the key press. (16)
4. Draw the circuit diagram to interface an LCD display with 8051 microcontroller and explain how to display a character using LCD display. (16)
5. Explain with a neat diagram the application of 8051 microcontroller in washing machine control (16)
6. Explain with a program to rotate the stepper motor in both clockwise and anticlockwise direction using 8051 microcontroller. (16)
7. Explain the different types of instructions set used in 8051 microcontroller. (16)
8. Write an assembly language program based on 8051 microcontroller instruction set to perform four arithmetic operations on two 8 bit data. (16)
9. Write a program to generate pulses to derive and for continuous operation of a stepper motor. (16)
10. Explain about various types of jump instructions according to range. (16)