KINGS

COLLEGE OF ENGINEERING

DEPARTMENT OF INFORMATION TECHNOLOGY

QUESTION BANK

Subject Name: Microprocessors and Microcontrollers **Year/Sem: II/IV**

UNIT-I

8085 MICROPROCESSOR

PART-A (2 MARKS)

1. Name the various flag bits available in 8085 microprocessor?
2. Give the significance of SIM and RIM instructions available in 8085?
3. How do the address and data lines are demultiplexed in 8085?
4. List various instructions that can be used to clear accumulator in 8085?
5. When the Ready signal of 8085 is sampled by the processor?
6. List out the the similarities b/w the CALL_RET and PUSH_POP instructions?
7. What is the need of ALE signal in 8085?
8. What are the addressing modes of 8085?
9. List the interrupt signals of 8085?
10. Why multiplexing is done in 8085?
11. List the limitations of 8085?
12. What is DMA?
13. Define machine cycle and instruction cycle?
14. Why address bus is unidirectional?
15. List few instructions to clear accumulator?
16. What is the function of NOP instruction?

PART-B (16 MARKS)

1. a. Draw the block diagram of 8085 mp and explain? (12)

   b. Write an assembly language program to add two 2-digits BCD Number? (4)

2. a. Explain the instruction set of 8085? (10)

   b. Write notes on status flag? (6)

3. a. Explain the architecture of Intel 8085 with the help of a block diagram? (12)

   b. Explain the similarities diff b/w subtract and compare instructions in 8085? (4)

4. a. Describe the sequence of event that may occur during the different T state in the opcode fetch machine cycle of 8085? (8)

   b. Write an assembly language program to convert on array of ASCII code to corresponding binary (hex) value. The ASCII array is stored starting from 4200H.The first element of the number of elements in the array. (8)

5. a. With neat block diagram explain the architecture of 8085? (10)

   b. List out the maskable and non maskable interrupts available in 8085? (6)

6. a. How do the instructions of 8085 is classified based on their function and word length? Give an example? (8)

   b. Write an ALP to Add two 8bit numbers? (8)

UNIT-II

8086 SOFTWARE ASPECTS

PART-A(2 MARKS)

1. What you mean by pipelining in 8086 processor?
2. How the 20 bit effective address is calculated in 8086 processor?
3. What are the advantages of using memory segmentation 8086?
4. What is the macro & when it is used?
5. What is the assembler directive?
6. What is mean by s/w interrupts?
7. Compare 8085 and 8086.
8. Give the flag format of 8086.
9. What is the function of direction flag?
10. What is physical address?
11. Define OFFSET address.
12. What are the versions of 8086?

13. What are the functions of segment register?
14. What are the functions of general purpose register?
15. What is the need for segmentation?

PART-B (16 MARKS)

1. a.	Explain the addressing modes of 8086 with the help of examples?	(12)
b.	Write short notes on macro?	(4)
2. a.	Explain the instruction set 8086?	(10)
b.	Write an ALP in 8086 to find sum of numbers in array?	(6)
3. a.	Explain the addressing modes of 8086 with the help of example?	(12)
b.	Describe the action taken by 8086 when NMI pin is activated?	(4)
4. a.	Explain memory organization in 8086?	(8)
b.	Explain the following assembler directives i. ASSUME ii. EQU iii. DD IV. DW	(8)
5. a.	With the neat sketch explain the architecture of 8086 processor?	(12)
b.	Give the significance of 'O' flag,'T'flag,'I' flag &'D'flag of 8086?	(4)

UNIT-III

8086 SYSTEM DESIGN

PART-A(2 MARKS)

1. What is the purpose of CLK signal in an 8086 system?
2. Differentiate the operating modes of 8086 processor?
3. What is a segment override prefix? Give an example.
4. What is the use of LATCH signal on the data lines?
5. What is the need for MN/MX pin in 8086 system?
6. What is the purpose of QUEUE in 8086 processor?
7. Give the operation of CBW and TEST instructions of 8086?
8. List few string instructions of 8086?
9. What is the use of LOCK prefix?
10. What is the purpose of REP prefix?
11. What are assembler directives?

12. What are the advantages of ALP?
13. Define a MACRO?
14. What is MACRO expansion?
15. What are the types of Multiprocessor configuration?
16. What is Co-processor?

PART-B (16 MARKS)

1. a. Explain the Maximum mode of operation of 8086. (12)
   b. Write short notes on addressing memory. (4)
2. a. Explain the minimum mode of operation of 8086. (12)
   b. Write notes on addressing input and output devices? (4)
3. a. Design an 8086 based system in minimum mode containing 64kb of EPROM and 64kb of RAM (12)
   b. Give the functions of NMI, BHE and TEST pins of 8086? (4)
4. Explain the various multiprocessor configurations. (16)
5. a. Discuss in detail the various signal of 8086. (10)
   b. Explain in detail about 8086 memory banks and associated signals for byte and word operations. (6)

UNIT-IV

I/O INTERFACING

PART-A (2 MARKS)

1. Name the two modes of operation of DMA controller?
2. List the operating modes of 8253 timer.
3. Give the control word format of timer?
4. What is the use of USART?
5. Compare serial and parallel communication.
6. What is the use of Keyboard and display controller?
7. What are the functions performed by 8279?
8. What is PPI?
9. Give the control word format for I/O mode of 8255?
10. Give the BSR mode format of 8255.

11. What is the need for interrupt controller?
12. What are the registers present in 8259?
13. What are the applications of 8253?
14. Define interrupts.
15. Define DMA process.
16. Give the status word format of 8257.

PART-B (16 MARKS)

1. Draw the Block diagram and explain the operations of 8251 serial communication interface. (16)
2. Draw the Block diagram of 8279 and explain the functions of each block. (16)
3. Draw the block diagram of programmable interrupt controller and explain its operations. (16)
4. Discuss in detail about the operation of timer along with its various modes. (16)
5. Draw the Block diagram of DMA controller and explain its operations. (16)

UNIT-V

MICRO CONTROLLERS

PART-A (2 MARKS)

1. Differentiate microprocessor and microcontrollers.
2. Differentiate RRA and RRC A instructions of 8081.
3. Give the format of PSW register of 8051.
4. What is the jump range in 8051?
5. List the features of 8051.
6. Define a Microcontroller.
7. What is special function registers?
8. What is the use of PCON register?
9. State the function of RS0 and RS1 bits of PSW?
10. Give the interrupt priorities of 8051.
11. List the addressing modes of 8051.
12. What is the use of TCON register?
13. What is the RAM size of 8051?

14. What is the ROM size of 8051?
15. What is the use of B-register in 8051?

PART-B (16 MARKS)

1. Describe the architecture of 8051 with a neat diagram.(16)
2. Explain the interrupt structure, SFR and timers of 8051.(16)
3. List out the salient features of 8051 Microcontroller.(16)
4. Explain the following instructions of 8051 with examples.(16)
    i. CJNE destination, source, label
    ii. MUL AB
    iii. RRL A
    iv. SWAP A
    v. SETB P2.0
5. Discuss in detail stepper motor interfacing with 8051. (16)