(Time: 2$\frac{1}{2}$ hours)

[Marks: 75]

Please check whether you have got the right question paper.

N. B.: (1) **All** questions are **compulsory**.

(2) Make**suitable assumptions** wherever necessary and **state the assumptions** made.

(3) Answers to the **same question** must be **written together**.

(4) Numbers to the **right** indicate **marks**.

(5) Draw **neat labeled diagrams** wherever **necessary**.

(6) Use of **Non-programmable** calculator is **allowed**.

1. Attempt *any three* of the following: 15

a. Describe a Microprocessor based system.

b. Explain the terms:-
   i)   Word
   ii)   Byte
   iii)   Nibble
   iv)   Machine language
   v)   Assembly language

c. Explain Tristate device logic and Buffer.

d. Write a short note on classification of memory.

e. Draw a neat label functional block diagram of 8085 microprocessor and explain the flags of the flag register.

f. Explain the timing diagram of the Memory Read Cycle.

2. Attempt *any three* of the following: 15

a. Explain the working of the OUT instruction in 8085 microprocessor.

b. Explain the memory mapped I/O with STA 8000H stored at memory address 2050H.

c. List and explain the various data transfer instruction.

d. What is a instruction, instruction word size? Write types of instruction based on size?

e. Explain the following instruction
   i)   ADI
   ii)   JC
   iii)   XRA
   iv)   ORI
   v)   JNZ

f. Write an assembly program for 8085 microprocessor to add the content of C030H and C031H . Store the sum in C040H and carry at C041H.

[TURN OVER]

3. **Attempt _any three_ of the following:** 15

a. Write an assembly program for 8085 microprocessor to transfer the contents of 10 memory location from C030H- C039H to C040H - C041H.

b. Explain the various Rotate Instruction for 8085 microprocessor

c. Calculate the time delay for the 8085-based Microcomputer with 2 MHz clock frequency.

Label	Mnemonics	Operand	T cycle
	MVI	C,FFH	7
LOOP:	DCR	C	4
	JNZ	LOOP	10/7

d. Draw and explain a flowchart for a zero to nine counter.

e. What is a stack? What are the two operations on the stack? Explain with example.

f. Explain the execution of a CALL instruction for 8085 microprocessor and its effect on the stack pointer and program counter.

4. **Attempt _any three_ of the following:** 15

a. Write an assembly program for 8085 microprocessor to convert 72_{BCD} to its binary equivalent.

b. Explain the following instruction :-
   i) LHLD and SHLD
   ii) XCHG and XTHL
   iii) SBB

c. Explain the following :-
   i) Cross Assembler
   ii) Loader

d. What is the function performed by a debugger?

e. Explain the steps of 8085 microprocessor interrupt process.

f. Write a short note on 8085 microprocessor vectored interrupts.

5. **Attempt _any three_ of the following:** 15

a. Explain the internal structure of the Pentium Pro Processor.

b. List any five Pentium instructions and explain the function of any two.

c. Explain the CPUID instruction in Pentium II.

d. Compare Core i3, i5 and i7 processors.

e. What are the features of the SPARC Architecture?

f. What are the various data format in the SPARC Architecture?

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