

(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:

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- 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:

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- 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 an 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:

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

- Draw and explain a flowchart for a zero to nine counter.
- What is a stack? What are the two operations on the stack? Explain with example.
- 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:

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- Write an assembly program for 8085 microprocessor to convert 72<sub>BCD</sub> to its binary equivalent.
- Explain the following instruction :-
  - LHLD and SHLD
  - XCHG and XTHL
  - SBB
- Explain the following :-
  - Cross Assembler
  - Loader
- What is the function performed by a debugger?
- Explain the steps of 8085 microprocessor interrupt process.
- Write a short note on 8085 microprocessor vectored interrupts.

5. Attempt **any three** of the following:

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- Explain the internal structure of the Pentium Pro Processor.
- List any five Pentium instructions and explain the function of any two.
- Explain the CPUID instruction in Pentium II.
- Compare Core i3, i5 and i7 processors.
- What are the features of the SPARC Architecture?
- What are the various data format in the SPARC Architecture?