

[Time:2.30 Hrs]

[Marks:75]

- N.B:
1. All questions are compulsory.
 2. Figures to the right indicate full marks.

Q.1 Attempt any four of the following 20

- A Convert Decimal number 35.45 to octal number
- B Why Nand gate is called Universal gate.
- C Explain basic functional units of computer
- D State the basic logic gates. Explain any one
- E Design full adder circuit.
- F What is multiplexer? What is their need? Design 4:1 multiplexer.

Q.2 Attempt any four of the following 20

- A Define terms: Memory word, word length, Address & address space
- B Explain Big-Endian and Little-Endian Assignments.
- C Compare RISC and CISC instruction sets.
- D Explain the use of stacks in computer operations with example
- E Write a note on assembly language.
- F State & explain the ways of byte address assignment.

Q.3 Attempt any four of the following 20

- A Discuss process control registers.
- B With neat diagram explain organization of instruction fetch section of the processor.
- C How arithmetic & logic instructions differ from Load? Explain with example.
- D What is DMA Controller
- E Explain program controlled I/O.
- F Explain the concept of exception.

Q.4 Attempt any three of the following.

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- A Perform with 2's Complement arithmetic $-32+22$.
- B What is multiplexer? Explain its use.
- C What is flip-flop? Draw the circuit of SR flip-flop using NAND gate
- D What are the components of processor?
- E Explain with example sequence of actions needed to fetch and execute an unconditional branch instruction
- F How data movement & manipulation operations performed using Data Path.
