

(3 hours)

Total Marks: 80

- N.B.
1. Question No. 1 is compulsory
 2. Attempt any **three** questions from remaining five questions
 3. Assume suitable data if **necessary** and justify the assumptions
 4. Figures to the **right** indicate full marks

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| Q1 | A | Convert | 05 |
| | | i) 123 in to binary | |
| | | ii) (AB9) ₁₆ in to Decimal | |
| | | iii) (351) ₈ in to decimal | |
| | | iv) 129 in to BCD | |
| | | v) 64 in to gray code | |
| | B | Draw the single and double precision format for representing floating point number using IEEE 754 standards and explain the various fields | 05 |
| Q1 | C | Explain SR Flip Flop | 05 |
| | D | Differentiate between Hardwired control unit and Micro programmed control unit | 05 |
| Q2 | A | Draw the flow chart of Booths algorithm for signed multiplication and Perform 5 x 2 using booths algorithm | 10 |
| | B | Explain the different addressing modes. | 10 |
| Q3 | A | For 132.65 obtain the IEEE 754 standards of Single precision and Double precision format | 10 |
| | B | Explain Micro instruction format and write a microprogram for the instruction ADD R ₁ , R ₂ | 10 |
| Q4 | A | Consider a 4-way set associative mapped cache with block size 4 KB. The size of the main memory is 16 GB and there are 10 bits in the tag. Find-
1. Size of cache memory
2. Tag directory size | 10 |
| | B | Explain Flynn's classification | 10 |
| Q5 | A | Explain different types Distributed and Centralized bus arbitration methods | 10 |
| | B | Describe the detailed Von-Neumann Model with a neat block diagram | 05 |
| | C | Describe the characteristics of Memory. | 05 |
| Q6 | | Write Short notes on | 20 |
| | a) | Grey code, BCD, Excess-3 Code with example | |
| | b) | Encoder and Decoder | |
| | c) | Cache coherence | |
| | d) | Instruction Pipelining | |