

(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
- 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
- Q1 B Draw the single and double precision format for representing floating point number 05  
 using IEEE 754 standards and explain the various fields
- Q1 C Explain SR Flip Flop 05
- Q1 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 10  
 $5 \times 2$  using booths algorithm
- B Explain the different addressing modes. 10
- Q3 A For 132.65 obtain the IEEE 754 standards of Single precision and Double precision 10  
 format
- B Explain Micro instruction format and write a microprogram for the instruction 10  
 $ADD R_1, R_2$
- Q4 A Consider a 4-way set associative mapped cache with block size 4 KB. The size of the 10  
 main memory is 16 GB and there are 10 bits in the tag. Find-
1. Size of cache memory  
 2. Tag directory size
- 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