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
i) 123 in to binary   05
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   05
using IEEE 754 standards and explain the various fields

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   -   10
5 x 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