COMPUTER ORGANIZATION AND ARCHITECTURE (BCA 102)

Duration: 2 Hours   **Max. Marks: 50**

Instructions:

Figures to the right indicate maximum marks.

Start each question on a fresh page

All questions are compulsory

Q.1 A) Answer the following   **Marks (10)**

   a) Define the following: (5)

     i)   Fixed Point Representation
     ii) Direct Addressing Modes
     iii) Overflow condition
     iv) Two-Pass Assembly
     v)   RISC

B) State True or False for the following statements   **Marks (5)**

1) RAM works on the principle of locality.
2) Control Unit is responsible for arithmetic calculations.
3) DX is a general purpose register.
4) Micro-programmed control unit is faster compared to hardwired control unit.
5) Assembly language programmes interact directly with the hardware.

Q.2 Answer the following   **Marks (10)**

a) List the major features of ENIAC   (2)

b) Briefly discuss the functions of I/O module   (3)

c) Solve the following: (5)

    i) Convert (45AC)h to Octal number
    ii) Subtract 25 from 40 using Binary 2's complement
    iii) Obtain 2's complement of $(22)_{10}$
    iv) Represent -18 using binary.
    v) Convert $(786)_{10}$ to octal number

Q.3 Answer the following
Marks (10)

a) List the characteristics of Optical memory (2)

b) Draw a neat diagram and explain functions of a computer (3)

c) Explain with suitable example how cache memory improves system performance . (5)

Q.4 Answer the following
Marks (10)

a) Explain any two interrupt signals (2)

b) Briefly discuss the various general purpose registers of a CPU (3)

c) What is meant by Effective Address (EA)? Discuss briefly various addressing modes. (5)

Q.5 Answer the following
Marks (10)

a) Draw a neat diagram depicting interconnections of the system bus. (2)

b) Briefly discuss various support functions provided by an operating system. (3)

c) Write an 8086 assembly program to add two numbers and store the result and carry in memory variables. (5)