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44 (4) BCA-HC-4016

2024

**COMPUTER ORGANIZATION AND  
ARCHITECTURE**

Paper : BCA-HC-4016

Full Marks : 80

Time : Three hours

**The figures in the margin indicate  
full marks for the questions.**

1. Answer the following questions :  $2 \times 10 = 20$ 
  - (a) What is cache memory ?
  - (b) What do you mean by the term Computer Architecture ?
  - (c) What is SRAM and DRAM ?
  - (d) What do you mean by Microoperation ?
  - (e) What is Random Access Memory ?
  - (f) Write differences between RISC and CISC.

Contd.

- (g) Explain Semiconductor memory.
- (h) What do you mean by memory location ?
- (i) Define Memory Address Register.
- (j) What is Assembly language ?

2. Answer the following questions : **(any four)**  
5×4=20

- (a) Briefly explain about bus structure.
- (b) What is single Accumulator organization ? Explain.
- (c) Write the pros and cons of DMA.
- (d) Briefly explain about the functional units of computer.
- (e) Write an assembly language program using one address instruction for the following expression

$$X = (A + B) * (C + D)$$

3. Answer the following questions : **(any three)**

- (a) Explain arithmetic and shift microoperation. 5+5=10
- (b) Discuss about different types of registers used in computer. 10

- (c) Write an assembly language program for the following expression using (i) three address and (ii) two address instruction - 5+5=10

$$X = \frac{A - B + C * (D * E - F)}{G + H * K}$$

- (d) Convert  $(0.6875)_{10}$  to binary and  $(0.011001)_2$  to decimal. 5+5=10
- (e) What is addressing mode ? Explain about different types of addressing modes. 2+8=10
- (f) What do you mean by instruction sequencing ? Briefly explain about straight line sequencing and branching. 2+8=10

4. Write short notes on : **(any two)** 5×2=10

- (a) Page replacement algorithms
- (b) Memory hierarchy
- (c) Logic microoperation
- (d) Program controlled I/O