

**K-325**

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[Roll No. ....]

**BCA-11**

**BCA IVth Semester  
Examination Dec., 2023**

**COMPUTER ORGANIZATION**

**Time : 2 Hours]**

**[Max. Marks : 70**

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*Note :- This paper is of Seventy (70) marks divided into two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given there in. **Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.***

**Section-A**

**(Long Answer Type Questions) 2×19=38**

*Note :- Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any two (02) questions only.*

**K-325**

( 1 )

P.T.O.

1. With a neat block diagram, show how the basic computer registers are connected to the common bus. Explain the working of the 16-bit common bus. (19)
2. Answer the following :
  - (a) Illustrate the Memory Hierarchy in computer systems. Discuss the advantages of having a hierarchical memory structure. (9)
  - (b) Explore the internal organization of Memory Chips, focusing on Semiconductor RAM memories and Read-Only Memories (ROM). Discuss their characteristics and use cases. (10)
3. Compare and contrast Programmed I/O, Interrupt-Driven I/O, and Direct Memory Access (DMA) as I/O techniques. Provide examples of scenarios where each is advantageous.
4. Answer the following :
  - (a) Define and differentiate between CISC (Complex Instruction Set Computers) and RISC (Reduced Instruction Set Computers). Discuss the design philosophy and advantages of each. (9)
  - (b) Explore the various Addressing Modes in the context of the 8085 microprocessor. Provide examples to illustrate the use of different addressing modes. (10)

5. Answer the following :

(a) Explain the operation of a Flip-Flop. How is it different from a latch? Provide examples of applications where Flip-Flops are commonly used ?

(9)

(b) Discuss the significance of Magnitude Comparator in digital systems. How does it contribute to the comparison of binary numbers ?

(10)

### Section–B

(Short Answer Type Questions) 4×8=32

**Note** :- Section ‘B’ contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. Write a short note on the following :

(a) Multiplexer

(b) Demultiplexer

2. What is the difference between microprocessor and micro program ? Is it possible to design a microprocessor without a micro program ? Are all micro programmed computers also microprocessors ?

3. Explain the role and functionality of I/O Processors in a computer system. How do they enhance the efficiency of input and output operations ?
4. Describe the memory hierarchy. How does it contribute to the efficient functioning of a computer system ?
5. Explain the internal organization of Semiconductor RAM memories. Discuss the advantages and disadvantages of using dynamic RAM (DRAM) over static RAM (SRAM).
6. Explain the role of parallel processing in computer system.
7. Discuss the execution cycle of instructions in the 8085 microprocessor. Provide a step-by-step explanation.
8. Discuss the mapping functions used in Cache Memory. How does Cache Memory contribute to improving the overall performance of a computer system ?

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