

2024

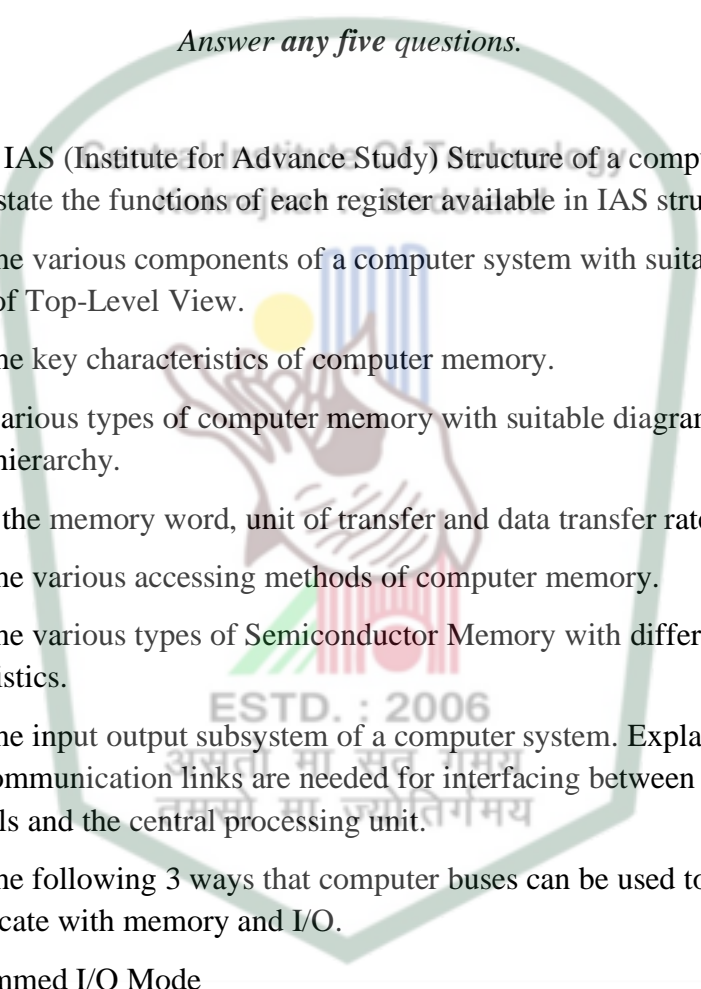
**Computer Architecture and Organization**

*Full Marks : 100*

Time : Three hours

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

*Answer any five questions.*

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1.   a) Draw the IAS (Institute for Advance Study) Structure of a computer system and then state the functions of each register available in IAS structure. 10  
      b) Discuss the various components of a computer system with suitable diagram of Top-Level View. 10
  2.   a) Discuss the key characteristics of computer memory. 5  
      b) Discuss various types of computer memory with suitable diagram of memory hierarchy. 5  
      c) What are the memory word, unit of transfer and data transfer rate. 5  
      d) Discuss the various accessing methods of computer memory. 5
  3.   a) Discuss the various types of Semiconductor Memory with different characteristics. 10  
      b) Discuss the input output subsystem of a computer system. Explain why the special communication links are needed for interfacing between the peripherals and the central processing unit. 5+5=10
  4.   Discuss the following 3 ways that computer buses can be used to communicate with memory and I/O. 20  
      i. Programmed I/O Mode  
      ii. Interrupt-Initiated I/O  
      iii. Direct Memory Access (DMA)
  5.   a) Discuss the Von Neumann architecture of computer system with suitable diagram. 10  
      b) i. Discuss the functionalities of DMA controller. 5+5=10  
          ii. Explain briefly the DMA transfer operation.
  6.   Write short notes on (any four) 4\*5=20

- i. Monitor and Printer
- ii. Top-Level Structure of computer system
- iii. Functions of Computer System
- iv. Keyboard and Mouse
- v. Secondary memory

