

**BACHELOR OF TECHNOLOGY (CBCS) (2020 COURSE)**  
**B.Tech.Sem - V INFORMATION TECHNOLOGY : WINTER : 2023**  
**SUBJECT : COMPUTER ARCHITECTURE & ORGANIZATION**

Day : Wednesday

Time : 02:30 PM-05:30 PM

Date : 6/12/2023

**W-24732-2023**

Max. Marks : 60

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**N.B.**

- 1) All questions are **COMPULSORY**.
  - 2) Figures to the **RIGHT** indicate **FULL** marks.
  - 3) Assume suitable data **WHEREVER** necessary.
  - 4) Draw neat labeled diagrams **WHEREVER** necessary.
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Q.1 What are the latest trends in the field of computer architecture? Give pointwise description. (10)

**OR**

Q.1 Write note on the following: (10)  
a) Cloud Computing    b) Cluster Computing

Q.2 What are the different steps in writing VHDL testbench? Explain with an example. (10)

**OR**

Q.2 Write a VHDL code for SR flip-flop using dataflow and behavioral methods. (10)  
Mention important comments.

Q.3 Write and explain a complete microprogram for ADD Src, Dest instruction. (10)

**OR**

Q.3 List and explain the micro-operations for the execution of following instruction: (10)  
SUB [SI],BL

Q.4 Explain the direct mapping technique for cache memory with neat diagram. What are its advantages and disadvantages? (10)

**OR**

Q.4 Explain various replacement algorithms used in cache memory. (10)

Q.5 What are the latest trends in the field of multiprocessor architecture? Explain in detail. (10)

**OR**

Q.5 Describe the distributed memory architecture with suitable diagram. (10)

Q.6 What is dynamic scheduling? Explain with suitable example. (10)

**OR**

Q.6 What is pipeline stall? When it occurs? How to avoid it? Explain. (10)

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