BACHELOR OF TECHNOLOGY (CBCS - 2023)
B. Tech. Sem-IV Computer Science & Engineering : SUMMER : 2025
SUBJECT: COMPUTER ORGANIZATION & ARCHITECTURE

Day : Thursday
Date : 29/05/2025

S-29275-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.

1) All questions are **COMPULSORY.**
2) Figures to the **RIGHT** indicate **FULL** marks.
3) Assume suitable data **WHEREVER** necessary.
4) Draw neat diagrams **WHEREVER** necessary.

Q. 1 Differentiate between Computer Organization and Architecture. Explain the functional organization of a computer system with a neat block diagram. **(10)**

OR

Q. 1 Draw and explain in detail the Von-Neumann Architecture of computer. **(10)**

Q. 2 Describe Booth's algorithm for signed binary multiplication. Illustrate the algorithm using the example: Multiply (-5) × (-3). **(10)**

OR

Q. 2 What is Hardwired Control Unit? Draw and explain the working of Sequence Counter Hardwired Control Unit. **(10)**

Q. 3 Explain Addressing Mode of an Instruction with the help of examples? Identify the Addressing mode of the following instructions. **(10)**

1. MOV AL, 25h
2. ADD AX, [BX+SI+02h]
3. CLC
4. SBB CL,[2000h]
5. ADC AL,BL

OR

Q. 3 What is Interrupt? Explain the steps involved in interrupt handling with the help of a diagram. **(10)**

Q. 4 Explain the 4-Way Set Associative cache mapping techniques in detail with suitable diagram and example. **(10)**

OR

Q. 4 Draw and Explain the Memory Hierarchy in Computer. List its features and Application. **(10)**

Q. 5 What is Direct Memory Access? How does it help in reducing CPU load? **(10)**

OR

Q. 5 Draw and explain the architecture of USB. **(10)**

Q. 6 With a neat diagram, describe a 5-stage instruction pipeline. Identify and explain each stage. **(10)**

OR

Q. 6 What is cache coherence in parallel processors? Explain the working of MESI protocol. **(10)**

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