COMPUTER SYSTEM ORGANISATION

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1. Knowledge
- Define operation code, operand, and addressing modes
- Describe zero, one, two, and three address instructions
- List and classify different types of instructions

2. Comprehension
- Explain the memory organization and its interfacing with system bus using multiplexers/tri-state devices
- Differentiate between various types of memory and their functions
- Describe memory hierarchy, associative memory, cache memory, and virtual memory

3. Application
- Compare and contrast Von Neumann and Harvard architecture
- Apply knowledge of control unit structures and behaviors
- Design control units using hardwired and microprogrammed control techniques

4. Analysis
- Analyze parallelism in microinstruction for control units
- Evaluate I/O organization techniques such as polling, interrupts, and DMA
- Compare and contrast different I/O bus interfacing protocols

5. Synthesis
- Develop fixed and floating-point arithmetic operations like addition, subtraction, multiplication (Booth's Algorithm), and division
- Design combinational ALU for performing arithmetic and logical operations

6. Evaluation
- Assess the efficiency of ALU design in performing computations
- Evaluate the performance of memory hierarchy in improving system speed and efficiency
- Critically analyze the impact of control unit design on system processing capabilities