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| **SESSION** | **APRIL 2025** |
| **PROGRAM** | **BACHELOR OF COMPUTER APPLICATION (BCA)** |
| **SEMESTER** | **III** |
| **COURSE CODE & NAME** | **DCA2103 COMPUTER ORGANIZATION** |
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**Assignment SET - I**

**Q1. Explain the role of addressing modes in computer architecture. 10**

**Ans 1.**

**Role of Addressing Modes in Computer Architecture**

**Addressing Modes**

Addressing modes in computer architecture define how the operand of an instruction is accessed. These modes are essential because they provide flexibility and efficiency in instruction execution. In simple terms, addressing modes determine where the data resides and how it can be retrieved or manipulated.

The CPU uses addressing modes to access data located in registers, memory locations, or directly within the instruction itself. By offering different methods to refer to data, addressing

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**Q2. How does a microprogrammed control unit differ from a hardwired control unit?**

**Ans 2.**

**Difference Between Microprogrammed and Hardwired Control Unit**

**Overview of Control Units**

The control unit is a critical component of the CPU that directs the execution of instructions by generating control signals. Based on how these control signals are generated, control units are classified into microprogrammed and hardwired types.

These two types of control units differ in structure, design methodology, flexibility, and performance. Both serve the same purpose of guiding data flow within the CPU, but their

**Q3. What is the role of RAID in disk storage? 10**

**Ans 3.**

**Role of RAID in Disk Storage**

**RAID Technology**

RAID stands for Redundant Array of Independent Disks, a data storage virtualization technology that combines multiple physical disk drives into one logical unit to improve performance, fault tolerance, or both. RAID is widely used in enterprise storage systems, data centers, and high-performance environments.

The core objective of RAID is to enhance data reliability and input/output (I/O) efficiency by

**Assignment SET - II**

**Q4. Explain in detail RISC and CISC architectures? 5+5**

**Ans 4.**

**RISC Architecture**

RISC stands for Reduced Instruction Set Computer, an architectural design philosophy that emphasizes a small set of simple instructions. The idea behind RISC is that by simplifying the instruction set, the CPU can execute instructions faster and more efficiently. Each instruction is designed to execute in a single clock cycle, which allows for high-speed processing and improved performance.

RISC architectures rely heavily on registers for instruction operations. Instructions in RISC

**Q5. Differentiate between multiprocessing and multiprogramming. 10**

**Ans 5.**

**Difference Between Multiprocessing and Multiprogramming**

**Multiprocessing**

Multiprocessing refers to a system having two or more CPUs (Central Processing Units) that work in parallel to execute multiple processes simultaneously. In a multiprocessing system, multiple processors share a common physical memory and work under the control of a single operating system.

Multiprocessing can be of two types: symmetric and asymmetric. In symmetric

**Q6. What are hazards in pipeline processing? Discuss the hazards and suggest techniques to overcome them. 5+5**

**Ans 6.**

**Hazards in Pipeline Processing and Solutions**

**Pipeline Hazards**

Pipeline processing is used in modern CPUs to overlap instruction execution, thus improving overall performance. However, pipelines can face issues called hazards, which delay instruction execution and reduce efficiency. Hazards arise when the next instruction cannot execute in its designated cycle due to conflicts or dependencies.

There are mainly three types of hazards: data hazards, control hazards, and structural hazards.