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| **SESSION** | **MARCH 2024** |
| **PROGRAM** | **BACHELOR OF COMPUTER APPLICATION(BCA)** |
| **SEMESTER** | **III** |
| **COURSE CODE & NAME** | **DCA2103 - COMPUTER ORGANIZATION** |
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**Set-I**

**1. Explain von Neumann Architecture in detail. 10**

**Ans 1.**

**Von Neumann Architecture**

The von Neumann architecture, also known as the von Neumann model or the Princeton architecture, is a computer architecture based on a 1945 description by the mathematician and physicist John von Neumann. This architecture forms the basis of most computer systems in use today. Here, we will delve into its details, exploring its key components, principles, and

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**2. Explain in detail the different instruction formats with examples. 10**

**Ans 2.**

**Instruction Formats in Computer Organization**

Instruction formats define how machine language instructions are structured, allowing the CPU to interpret and execute them. These formats typically consist of an operation code (opcode) and one or more operands. The structure of these instructions can vary depending on the architecture, affecting how instructions are encoded and decoded. Here, we will explore several common instruction formats with examples to illustrate their functionality.

**Single-Address Instruction Format**

In this format, the instruction includes one address field, along with the opcode. This address can

**3. Discuss the organization of main memory. 10**

**Ans 3.**

**Organization of Main Memory**

Main memory, also known as primary or RAM (Random Access Memory), is a crucial component of a computer system where data and instructions are stored for immediate processing by the CPU. The organization of main memory plays a significant role in the overall performance and functionality of a computer. Here, we will discuss the key aspects of main

**Set-II**

**4. List and explain the mapping functions. 10**

**Ans 4.**

Mapping functions play a crucial role in computer science and are used in various contexts, including memory management, data structures, and network communication. These functions are used to relate one set of items to another, often in a way that preserves some underlying structure or relationship. Here, we will discuss some common mapping functions and their

**5. What is an interrupt? Discuss the hardware actions in interrupt handling. 2+8**

**Ans 5.**

**Interrupt: An Overview**

An interrupt is a signal sent from a hardware or software component to the processor, indicating that an event requiring immediate attention has occurred. Interrupts are used to handle events that are asynchronous to the current instruction flow, allowing the processor to respond to external stimuli quickly and efficiently.

**Hardware Actions in Interrupt Handling**

When an interrupt occurs, the processor suspends its current execution and transfers control to a

**6. Explain the characteristics of RISC and CISC architectures. 10**

**Ans 6.**

**Characteristics of RISC and CISC Architectures**

RISC (Reduced Instruction Set Computer) and CISC (Complex Instruction Set Computer) are two contrasting CPU design philosophies that have influenced the development of computer architectures. Each approach has its own set of characteristics, advantages, and disadvantages, which are important to understand in the context of computer architecture.