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| **SESSION** | **NOV-DEC 2023** |
| **PROGRAM** | **MASTER OF COMPUTER APPLICATIONS (MCA)** |
| **SEMESTER** | **II** |
| **COURSE CODE & NAME** | **DCA6204 –ADVANCED COMPUTER NETWORKS** |
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**Set-I**

**1. What is topology? Explain following Network reference models:**

**a. OSI reference model**

**b. Internet reference model**

**c. Comparison of the OSI & the TCP/IP reference models**

**Ans 1.**

Topology, in the context of networking, refers to the layout or arrangement of different elements (like nodes, links, and devices) in a computer network. It determines how these elements are interconnected and how data is transmitted within the network. There are various topologies like bus, star, ring, mesh, and hybrid, each with its own advantages and disadvantages.

**OSI Reference Model**

The Open Systems Interconnection (OSI) model is a conceptual framework used to understand and design network syste

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**2. Define SONET. Explain the following key functionalities of SONET/SDH Standards**

**i. T1 / E1**

**ii. SONET STS-1 frame structure**

**iii. SONET STS-3 frame structure**

**Ans 2.**

SONET, an acronym for Synchronous Optical Networking, is a standardized digital communication protocol used to transmit a large amount of data over relatively long distances using a fiber optic medium. SONET, along with its international equivalent, Synchronous Digital Hierarchy (SDH), is designed to provide a robust and scalable framework for the transfer of multiple digital data streams. Let’s delve into the key functionalities of SONET/SDH Standards, focusing on T1/E1,

**3. a. What is ATM Cell, Virtual Path Identifier, Payload Type Indicator and Cell Loss Priority?**

**b. Describe the following key operations in the ATM Cell.**

**i. Generic Flow Control (GFC)**

**ii. Header Error Control**

**Ans 3a.**

ATM Cell, Virtual Path Identifier, Payload Type Indicator, and Cell Loss Priority are essential components in Asynchronous Transfer Mode (ATM) technology, a network protocol designed for high-speed data transmission.

**ATM Cell**

An ATM cell is

**Set-II**

**4. What is Routing and Intra-Domain Routing? Describe the following Intra-Domains Routing protocols.**

**a. Distance vector routing protocol**

**b. Link-state routing protocol**

**Ans 4.**

Routing in the context of computer networks refers to the process of selecting paths in a network along which to send network traffic. Intra-domain routing, specifically, deals with the routing processes within a single network domain, as opposed to inter-domain routing which involves routing between different network domains.

**Distance Vector Routing**

**5. Explain the working functionalities of Simple Network Management Protocol (SNMP)**

The Simple Network Management Protocol (SNMP) is a widely adopted protocol used for managing and monitoring network devices in an IP network. Its primary function is to facilitate the exchange of management information between network devices, like routers, switches, servers, workstations, printers, and more. SNMP is part of the Internet Protocol Suite, defined by the Internet Engineering

**6. Explain about Secure Socket Layer (SSL) functionality and architecture**

**Secure Socket Layer (SSL): Functionality and Architecture**

**Introduction** Secure Socket Layer (SSL) is a fundamental technology in the realm of internet security. It is widely used to establish an encrypted link between a web server and a browser, ensuring that all data transmitted remains private and integral. SSL is vital for protecting sensitive data exchanges,