**SESSION SEPTEMBER 2022**

**PROGRAM MASTER OF COMPUTER APPLICATION (MCA)**

**SEMESTER II**

**COURSE CODE &amp; NAME DCA6204 – ADVANCED COMPUTER NETWORK**

**Assignment Set – 1**

**1. a. Discuss the hardware components required for the computer network.**

**Ans: Network interface card:** Unlike other hardware component it does not connect one system to other or one network to other network; rather it provides the physical connection between computer workstation and the network. It plays a major role to determine the speed and performance of a network. In the previous section we acquainted with one example of NIC card, i.e. EtherneIts Half solved only

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**2. a. What are the differences between analog and digital networks?**

**Ans:**

|  |  |  |
| --- | --- | --- |
| **Feature**  | **Analog characteristics**  | **Digital characteristics** |
| **Signal**  | Continuously variable, in both amplitude and frequency | Discrete signal, represented as either changes in voltage or changes in light levels |

**b. What are the major goals of SONET design?**

**Ans:** SONET were designed to transmit circuit mode communications (e.g., DS1, DS3) from a variety of different sources, but they were principally meant to enable real-time, uncompressed, circuit-switched audio encoded in PCM format. Prior to SONET/SDH, the main challenge was that the synchronization sources of these multiple circuits were all different. This

**3. Explain different types of topologies of computer networks. Discuss the advantages and disadvantages also.**

**Ans: Types of topology** Based on the geometric representation of all the links and linking devices there are four basic topologies are possible:

Mesh network topology This network topology is one which a node not only captures and broadcast its own data, but also serves as a relay for other nodes that is, it must collaborate to propagate the data in the network. Each node connected with a dedicated point-to-point link with every other node

**Assignment Set – 2**

**4. a. Define unicast routing protocol. What are the differences between dynamic routes and static routes?**

**Ans:-**

|  |  |  |
| --- | --- | --- |
| **Key** | **Static Routing** | **Dynamic Routing** |
| Routing pattern | In static routing, user-defined routes are used in the routing table. | In dynamic routing, routes are updated as per the changes in network. |

**5. a. Discuss the requirements of web security.**

**Ans: The following are some of the web security requirements:**

** Use a capable SSL Web server:** The web server should comply with the appropriate requirements.

** Use a dual- home for the SSL Web server:** The sever host must have two separate network interfaces; connect the Internet to one and the internal enterprise network to the other. Configure

**6. Discuss symmetric key and asymmetric key cryptography in detail.**

## Ans: ****Symmetric Key Cryptography****

Symmetric Key Cryptography, or Symmetric Encryption, uses a secret key for both encryption and decryption. This approach is the inverse of Asymmetric Encryption, which uses one key to encrypt and another to decrypt. Data is translated to a format that cannot be interpreted or inspected by someone who does not have the secret key used to encrypt it during this phase.

The strength of