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| **SESSION** | **MARCH 2024** |
| **PROGRAM** | **BACHELOR OF COMPUTER APPLICATIONS (BCA)** |
| **SEMESTER** | **3** |
| **COURSE CODE & NAME** | **DCA2104 – BASIC OF DATA COMMUNICATIONS** |
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**Set – I**

**1. Describe various trends in data communications and network technology. Explain Communication model in brief. 5+5**

**Ans 1.**

**Trends in Data Communications and Network Technology**

The field of data communications and network technology is constantly evolving, driven by advancements in technology, increasing demands for higher performance, and the need for improved security. Here are some key trends shaping the landscape:

**1. Increased Bandwidth and Speed**

As the demand for high-speed internet and data transfer grows, so does the need for increased bandwidth. Technologies such as 5G are paving the way for faster and more reliable wireless

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**2. List some difference baseband and broadband transmission with some examples?**

**Ans 2.**

**Differences Between Baseband and Broadband Transmission**

Baseband and broadband are two fundamental methods of data transmission used in networking. Each has distinct characteristics and applications. Here’s a detailed comparison of their differences, including examples.

**1. Definition and Basic Concept**

**Baseband Transmission:**

* Baseband transmission uses a single channel to send data over a network. It transmits

**3. Differentiate between guided and unguided transmission and with some examples? 2+8**

**Ans 3.**

**Differentiating Between Guided and Unguided Transmission**

In data communication, transmission media can be broadly classified into two categories: guided and unguided transmission. Here’s a detailed comparison, including examples:

**Guided Transmission**

**Definition:** Guided transmission involves the use of physical media to guide the signal along a specific path from the sender to the receiver. It is also known as wired transmission.

**Characteristics:**

1. **Physical Path:** The transmission occurs through a tangible medium like cables or

**Set – II**

**4. Explain the process in Data exchanges in transmission line and explain different types of classifications? 5+5**

**Ans 4.**

**Data Exchanges in Transmission Lines**

Data exchange over transmission lines involves the process of sending and receiving data between devices through a communication medium. This process is fundamental in networking and telecommunications. Here’s an explanation of the process and the different classifications of data exchanges:

**Process of Data Exchanges in Transmission Lines**

1. **Data Generation:**
   * The process begins with data generation at the source device, which could be a

**5. Write short on synchronous and asynchronous transmission. 10**

**Ans 5.**

**Synchronous and Asynchronous Transmission**

In the realm of data communication, synchronous and asynchronous transmission are two fundamental methods used to control the timing of data exchange between devices. Each method has its own set of characteristics, advantages, and use cases.

**Synchronous Transmission** involves the continuous transmission of data blocks, synchronized by a clock signal shared between the sender and receiver. In this method, data is sent in a steady, predictable stream, and both the sending and receiving devices are precisely synchronized by the clock pulse. This synchronization ensures that the data arrives at regular intervals, minimizing the chances of errors caused by timing mismatches. Because

**6. Differentiate between frequency hopping spread spectrum and direct sequence spread spectrum 10**

**Ans 6.**

**Differentiating Between Frequency Hopping Spread Spectrum (FHSS) and Direct Sequence Spread Spectrum (DSSS)**

Frequency Hopping Spread Spectrum (FHSS) and Direct Sequence Spread Spectrum (DSSS) are two techniques used in wireless communication to enhance the robustness, security, and efficiency of data transmission. Both are forms of spread spectrum technology, which spreads the signal over a wider bandwidth than necessary. Here’s a detailed comparison between