**Vivekanand Education Society's Institute of Technology Department of Information Technology**

**Subject: Wireless Technology**

**Assignment No. 1**

**Topic: Fundamentals of Wireless Communication**

**Class: D15 A Date: 20th Feb 2024**

**Subject Incharge: Dr. Monali Chaudhari**

1**.** Define the following terms : Channel, Multipath propagation, Fading, Simplex channel, Duplex channel, FDD, TDD, Multiple Access, Processing gain in Spread spectrum system, subcarrier and subchannel.

2. Compare FDMA & TDMA on following points: Definition, Sharing Resource, Guard band requirement, Synchronization requirement, Filtering, ISI, Capacity, and Channel BW.

3. Explain CDMA has infinite theoretical capacity but is limited by the number of users.

4. List the main characteristics of CDMA.

5. What are the main features of Spread Spectrum?

6. Draw the block diagram of DSSS and FHSS transmitter and receiver.

7. List the properties of PN code.

8. Explain SDMA in brief with suitable illustrations.

9. List the data rate, frequency band, services offered and technology used in 1G to 5 G mobile systems.

10. If 20 MHz of total spectrum is allocated for a duplex wireless cellular system and each simplex channel has 25 KHz RF bandwidth, find: The number of duplex channels