

				Sub	ject	Coc	le: F	KEC	<u> 2076</u>
Roll No:									

B TECH (SEM-VII) THEORY EXAMINATION 2021-22 WIRELESS & MOBILE COMMUNICATION

Time: 3 Hours Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.

 $2 \times 10 = 20$

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- a. Explain the tradeoffs between the system capacity and co-channel interference.
- b. Write the name of channel assignment strategies in mobile radio propagation.
- c. Define the term Multiple Access.
- d. Write down the types of space diversity techniques.
- e. Illustrate various persistent methods in CSMA.
- f. Define the term Equalization.
- g. Discuss the uplink and downlink frequency band of GSM.
- h. Define specifications of LEO, MEO and GEO.
- i. Discuss the advantages of NGN networks.
- j. Compare Wi-Fi and WiMax.

SECTION B

2. Attempt any *three* of the following:

 $10 \times 3 = 30$

- a. Illustrate the MAHO technique and Queuing concept in hand off. Also explain the different types of handoff in mobile communication.
- b. Explain pn sequence generation process with the help of 3 bit linear feedback Shift register.
- c. Compare the throughput efficiencies and vulnerable time of pure ALOHA and Slotted ALOHA with the help of proper formulation.
- d. Explain the network architecture of UMTS. Also give brief view of IMT2000.
- e. Explain Wi-Fi and WiMax Standards.

SECTION C

3. Attempt any *one* part of the following:

 $10 \times 1 = 10$

- (a) If a signal to interference ration of 15dB is required for satisfactory forward channel performance of a cellular system, Calculate the frequency reuse factor and cluster size that should be used for maximum capacity if the path loss exponent is (a) n=4, (b) n=3? Assume that there are 6 co-channel cells in first tier, and all of them are at the same distance from the mobile. Use suitable approximations.
- (b) Explain Frequency Reuse concept with the help of proper cellular diagram. Also draw a cellular system with 19-cell reuse and locate the co-channel cells for this system.

4. Attempt any *one* part of the following:

 $10 \times 1 = 10$

- (a) Classify and explain different types of vocoders. Also give properties of speech signal.
- (b) Illustrate the different types of Frequency Hopped Multiple Access with the help of proper hop timing diagram.

5. Attempt any *one* part of the following:

 $10 \times 1 = 10$

- (a) Illustrate various Equalization techniques with the help of proper block diagram.
- (b) Explain FDMA and TDMA in detail with suitable diagram.

6. Attempt any *one* part of the following:

 $10 \times 1 = 10$

- (a) Explain GSM with the help of proper network architecture block diagram. Also give brief view of various Interface standards in GSM.
- (b) Explain Long term evolution (LTE) architecture in detail with diagram. Also give brief view of mobile satellite communication.

7. Attempt any *one* part of the following:

 $10 \times 1 = 10$

- (a) Write Short Note on (i) Mobile Adhoc Network (MANET) (ii) Bluetooth
- (b) Write Short Note on (i) Light Fidelity (ii) Introduction to 4g and 5g