PAPER ID-410871

Subject Code: KEC076

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 x 10 = 20

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 x 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 x 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 x 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 x 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 x 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 x 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