

Subject Code: XXXXX

Roll No:

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BTECH
(SEM-7) WIRELESS AND MOBILE COMMUNICATION 2021-22

TIME:3 HOUR

Total Marks: 100

Instruction: Attempt the questions as per the given instructions. Assume missing data suitably.

SECTION - A

Attempt *All Parts* in Brief

2*10 = 20

Q1	Questions	Marks
(a)	Explain the tradeoffs between the system capacity and co-channel interference.	2
(b)	Write the name of channel assignment strategies in mobile radio propagation.	2
(c)	Define the term multiple access.	2
(d)	Write down the types of space diversity techniques.	2
(e)	Illustrate various persistent methods in CSMA.	2
(f)	Define the term equalization.	2
(g)	Discuss the uplink and downlink frequency band of GSM.	2
(h)	Define specifications of LEO, MEU and GEO.	2
(i)	Discuss the advantages of NGN networks.	2
(j)	Compare Wi-Fi and WiMax.	2

SECTION - B

Attempt Any Three of the following

3*10 = 30

Q2	Questions	Marks
(a)	Illustrate the MAHO technique and Queuing concept in hand of. Also explain the different types of handoff in mobile communication.	10
(b)	Explain p-n sequence generation process with the help of 3 bit linear feedback shift register.	10
(c)	Compare the throughput efficiencies and vulnerable time of pure ALOHA and Slotted ALOHA with the help of proper formulation.	10
(d)	Explain the network architecture of UMTS. Also give brief view of IMT2000.	10
(e)	Explain Wi-Fi and WiMax Standards.	10

SECTION - C

Attempt Any One of the following

5*10 = 50

Q3	Questions	Marks
(a)	If a signal to interference ration of 15 dB 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.	10
(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.	10
Q4	Questions	Marks
(a)	Classify and explain different types of vocoders. Also give properties of speech signal.	10
(b)	Illustrate the different types of frequency hopped multiple Access with the help of proper hop timing diagram.	10
Q5	Questions	Marks
(a)	Illustrate various Equalization techniques with the help of proper block diagram.	10
(b)	Explain FDMA and TDMA in detail with suitable diagram.	10
Q6	Questions	Marks
(a)	Explain GSM with the help of proper network architecture block diagram. Also give brief view of various interface standards in GSM.	10

(b)	Explain long term evolution (LTE) architecture in detail with diagram. Also give brief view of mobile satellite communication.	10
Q7	Questions	Marks
(a)	Write short note on (i) Mobile Adhoc Network (MANET) (ii) Bluetooth	10
(b)	Write short note on (i) Light fidelity (ii) Introduction to 4G and 5G.	10