PAPER ID-310581

Subject Code: KEC076

Roll No: | | | | | | | | | | | | | |

BTECH
(SEM VII) THEORY EXAMINATION 2023-24
WIRELESS & MOBILE COMMUNICATION

TIME: 3 HRS **M.MARKS: 100**

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

SECTION A

1. Attempt *all* questions in brief.

Qno.	Question	Marks	CO
a.	Illustrate the need to evolve third generation wireless standards.	2	1
b.	Write the name of channel assignment strategies in mobile radio propagation.	2	1
c.	Discuss characteristics of a pn sequence.	2	2
d.	Define the term vocoder.	2	2
e.	Illustrate the maximum throughput efficiency of Slotted ALOHA.	2	3
f.	Define equalization.	2	3
g.	Illustrate the terms SGSN and GGSN.	2	4
h.	Illustrate the function of Node B in UMTS.	2	4
i.	Explain the advantage of light fidelity.	2	5
j.	Discuss Wi-Fi communication in a cellular system.	2	5

SECTION B

2. Attempt any *three* of the following:

a.	Explain co-channel reuse ratio. Also derive the relationship between co-channel reuse ratio and cluster size.	10	1
b.	Illustrate slow FHSS and fast FHSS in detail.	10	2
c.	Illustrate CSMA and CSMA/CD with the help of proper flow diagram.	10	3
d.	Explain GPRS architecture in detail. Also explain the use of CCU and PCU unit in detail.	10	4
e.	Illustrate the advantage of NGN networks.	10	5

SECTION C

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

a.	If a signal to interference ration of 17 dBm 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 (n) is 4, 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	1
b.	Explain Frequency Reuse concept with the help of proper cellular diagram. Also explain umbrella cell concept in mobile communication.	10	1

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

a.	Explain various types of vocoders with brief view of general voice generation mechanism.	10	2
b.	Explain various diversity techniques in wireless and mobile communication.	10	2

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

a.	Illustrate various equalization techniques with the help of proper block diagram.	10	3
b.	Compare FDMA, CDMA and TDMA in detail.	10	3

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

a.	Explain UMTS architecture in detail. Also briefly explain IMT 2000.	10	4
b.	Compare LEO, MEO, GEO. Also explain the timing diagram of call connection between two ISU units in mobile satellite communication.	10	4

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

a.	Discuss Mobile Ad-hoc Network (MANET) in detail.	10	5
b.	Write short note on (i) Wi-Max (ii) 4g technology	10	5