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BTECH
(SEM VII) THEORY EXAMINATION 2024-25
WIRELESS & MOBILE COMMUNICATION

TIME: 3 HRS

M.MARKS: 100

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A

1. Attempt all questions in brief. 2 x 10 = 20

Q no.	Question	CO	Level
a.	If $i=2$ and $j=1$, calculate the cluster size in cellular system.	1	K2
b.	Explain Doppler effect in wireless communication.	1	K2
c.	Define channel estimation.	2	K1
d.	Define spread spectrum modulation.	2	K1
e.	Write down the basic principle of orthogonality in OFDMA.	3	K2
f.	Define various persistent methods in CSMA.	3	K2
g.	Discuss the uplink and downlink frequency band of GSM.	4	K2
h.	Define LEO, MEO and GEO in mobile satellite communication.	4	K1
i.	Compare Bluetooth and ZigBee.	5	K2
j.	Define air interface.	5	K1

SECTION B

2. Attempt any three of the following: 10 x 3 = 30

a.	Illustrate Rayleigh Fading Channel. Write and draw its pdf and explain all the parameters.	1	K3
b.	Describe in detail about the different diversity mechanism with their advantages.	2	K3
c.	Discuss about the equalization techniques and illustrate about the Adaptive Equalizers in detail with suitable diagram.	3	K4
d.	Draw the GSM system architecture and briefly explain its components.	4	K3
e.	Define next generation network (NGN), and its basic services, features and functional architecture.	5	K4

SECTION C

3. Attempt any one part of the following: 10 x 1 = 10

a.	Explain various methods which are used to increase Channel Coverage and capacity.	1	K2
b.	Describe different Hand-off mechanisms with suitable diagram.	1	K2

4. Attempt any one part of the following: 10 x 1 = 10

a.	Illustrate the different types of FHSS with the help of proper hop timing Diagram, and differentiate with the DSSS.	2	K2
b.	Explain and classify various types of vocoders with pictorial view of general voice generation mechanism.	2	K3

5. Attempt any one part of the following: 10 x 1 = 10

a.	Explain multiple access techniques and Compare the TDMA, FDMA and CDMA techniques with suitable diagrams.	3	K2
b.	Define pooling and Illustrate CSMA with the help of proper flow diagram.	3	K2

6. Attempt any one part of the following: 10 x 1 = 10

a.	Explain GPRS architecture in detail with focus on modifications over GSM.	4	K2
b.	Draw the architecture of UMTS, and explain its main constituents.	4	K3

7. Attempt any one part of the following: 10 x 1 = 10

a.	Define WiMAX standards, its protocol architecture, and applications in competitions with Wi-Fi.	5	K3
b.	Explain Bluetooth's network topologies and its protocol stack.	5	K2