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BTECH
(SEM VII) THEORY EXAMINATION 2025-26
WIRELESS & MOBILE COMMUNICATION

TIME: 3 HRS

M.MARKS: 70

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

SECTION A

1. Attempt all questions in brief.

02 x 7 = 14

Q no.	Question	CO	Level
a.	Define cluster. Draw the diagram of a seven cell cluster.	1	K2
b.	Explain the term flat fading.	1	K1
c.	Explain time hopping.	2	K2
d.	Describe channel estimation in short.	2	K1
e.	Explain slotted ALOHA in short.	3	K2
f.	What is Edge Technology?	4	K1
g.	What are mobile Adhoc networks?	5	K2

SECTION B

2. Attempt any three of the following:

07 x 3 = 21

a.	Give a brief explanation as to why large-scale and small-scale fading occur in wireless systems? What are the factors influencing small scale fading?	1	K2
b.	Classify and explain different types of vocoders. Also give properties of speech signal.	2	K1
c.	What is equalization? Describe different equalization techniques in short.	3	K2
d.	Compare IS-95 and GSM standards on the basis of (i) Multiple Access technique used (ii) Handoff (iii) Handset interoperability (iv) Coverage area	4	K3
e.	What are the applications of 4G Technology? Mention the challenges faced by the 4G Networks.	5	K2

SECTION C

3. Attempt any one part of the following:

07 x 1 = 07

a.	List and describe different types of Handoff in Cellular System.	1	K2
b.	(i) "Frequency Reuse helps in increasing the Channel capacity" Justify. (ii) Justify 'Microcell zone concept is used to increase Channel Coverage and capacity'.	1	K2

4. Attempt any one part of the following:

07 x 1 = 07

a.	Describe non-orthogonal multiple access and multiplexing in MIMO systems in brief.	2	K2
b.	What are detections strategies? Explain diversity combining techniques in short.	2	K3

5. Attempt any one part of the following:

07 x 1 = 07

a.	Describe the working principle of Frequency Division Multiple Access (FDMA) in wireless communication. Explain how FDMA divides the available frequency spectrum to accommodate multiple users and allocate dedicated channels to each user for data transmission.	3	K2
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b.	Elaborate on the principles of Code Division Multiple Access (CDMA) and how it allows multiple users to share the same frequency spectrum simultaneously using unique spreading code.	3	K2
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6. Attempt any one part of the following: 07 x 1 = 07

a.	State four features of CDMA 2000 radio standards. CDMA 2000 is more advantageous than 3G GSM standards, Justify.	4	K3
b.	Draw the architecture of UMTS. State the function of various blocks.	4	K2

7. Attempt any one part of the following: 07 x 1 = 07

a.	(i) Compare between Wifi and Wimax standards in detail. (ii) What is Ultra Wideband communication? Explain in brief.	5	K2
b.	(i) Describe how 5G has penetrated in developed countries? What are deployment challenges of 5G in low-middle income countries? (ii) Discuss the advantages of NGN networks.	5	K2

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