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MTECH
(SEM II) THEORY EXAMINATION 2023-24
WIRELESS MOBILE NETWORKS

TIME: 3 HRS   **M.MARKS: 70**

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

SECTION A

1.   Attempt *all* questions in brief.   **2 x 7 = 14**

a.	Define wireless transmission and list its main components.
b.	Explain the difference between TDMA and FDMA.
c.	Outline the main deficiencies of existing GEO satellite systems.
d.	Explain snooping TCP.
e.	Describe CODA file system in brief.
f.	Discuss HLR and VLR in GSM.
g.	Explain Manet in Mobile Adhoc network.

SECTION B

2.   Attempt any *three* of the following: **7 x 3 = 21**

a.	What is modulation in the context of wireless communication? Name three types of modulation techniques.
b.	Explain GSM architecture and its main components.
c.	Evaluate the role of WAP (Wireless Application Protocol) in mobile networks. Discuss its advantages and limitations.
d.	Consider a mobile network where users frequently change their locations. Discuss how Mobile IP helps manage this mobility.
e.	Explain DSDV routing with suitable example and also differentiate it with AODV.

SECTION C

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

(a)	Discuss various multiplexing techniques in wireless communication.
(b)	Explain the concept of spread spectrum and its benefits in wireless communication.

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

(a)	Explain CDMA and provide one example of its application.
(b)	Discuss the evolution from UMTS to LTE and the improvements brought by LTE.

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

(a)	Explain the principle behind the IEEE 802.11 standard and its importance in wireless LANs.
(b)	Explain the main differences between GEO, MEO, and LEO satellite systems in terms of orbit characteristics and applications.

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

(a)	What are the key principles behind the functioning of DHCP in a mobile environment?
(b)	Discuss the security challenges in mobile networks and propose comprehensive strategies to address these challenges.

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

(a)	Describe the primary purpose of the Transport Control Protocol (TCP) in mobile networks? Explain how mobility affects the performance of TCP in wireless networks.
(b)	Discuss the importance of the World Wide Web (WWW) in supporting mobility.