

MASTER OF TECHNOLOGY (ELECTRONICS - VLSI) (CBCS - 2015 COURSE)  
M. Tech. (Electronics - VLSI) Sem-II :SUMMER- 2022  
SUBJECT : WIRELESS NETWORKS

Day : Wednesday

Time : 10:00 AM-01:00 PM

Date : 3/8/2022

S-14107-2022

Max. Marks : 60

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**N.B.**

- 1) All questions are **COMPULSORY**.
  - 2) Figures to the **RIGHT** indicate **FULL** marks.
  - 3) Assume suitable data if **NECESSARY**.
  - 4) Answers to both the sections should be written in separate answerbook.
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**SECTION – I**

**Q.1** Explain radio propagation mechanism in mobile communication. (10)

**OR**

Explain the cellular concept in mobile communication and illustrate with necessary expression. How the frequency reuse helps in increasing its capacity.

**Q.2** What should be a relationship between call arrival rate and service rate when a cellular system is in steady state? Explain clearly. (10)

**OR**

What is the need for frequency reuse? Explain the frequency reuse concept. Explain with suitable timing diagram how a cellular telephone call is made.

**Q.3** Explain RAKE receiver in CDMA. (10)

**OR**

Write short notes on :

- i) Walsh codes
- ii) Variable tree OVSF

**SECTION – II**

**Q.4** Explain GSM architecture and international roaming for GSM. (10)

**OR**

Explain the radio resource connection establishment process during call set-up in GSM.

**Q.5** Explain MIMO system architecture with transmit diversity. (10)

**OR**

Describe the concept of spectral multiplexing in detail with diagram.

**Q.6** What are the channel types that are used in the UMTS? Discuss the role of each channel type. Also discuss the responsibility of the RNC and node B in UMTS network. (10)

**OR**

What are the differences between CDMA 2000 and WCDMA?

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