



Galgotias College of Engineering and Technology, Greater Noida

Pre University Test (PUT) : Odd Semester 2024 - 25

Course/Branch: B.Tech /ECE

Semester: 7th

Subject Name: Wireless & Mobile Communication

Max. Marks: 100

Subject Code : KEC-076

Time: 180min

CO-1 : Express the basic knowledge of mobile radio & cellular communication fundamentals and their application to propagation mechanisms, path loss models and multi-path phenomenon.

CO-2 : Analyze the performance of various voice coding and diversity techniques.

CO-3 : Apply the knowledge of wireless transmission basics to understand the concepts of equalization and multiple access techniques.

CO-4 : Examine the performance of cellular systems being employed such as GSM, CDMA and LTE using various theoretical and mathematical aspects.

CO-5 : Express basic knowledge of mobile adhoc networks and the existing & upcoming data communication networks in wireless and mobile communication domain.

Section – A# 20 Marks(Short Answer Type Questions)

Attempt **ALL** the questions. Each Question is of 2 marks (10 x 2 = 20. marks)

Q. No.	CO's	Question Description # Attempt ALL the questions. Each Question is of 2 marks
1	a	CO1 Draw general model of wireless communication system. (K ₁)
	b	CO1 Illustrate the condition for zero ISI. (K ₂)
	c	CO2 Discuss Selection Diversity. (K ₁)
	d	CO2 Define the term vocoder. (K ₁)
	e	CO3 Discuss Pooling (K ₁).
	f	CO3 Explain the maximum throughput efficiency of slotted and pure ALOHA. (K ₂)
	g	CO4 Illustrate the term SGSN and GGSN. (K ₂)
	h	CO4 Discuss GSM. (K ₁)
	i	CO5 Explain Wireless Ad-hoc Network. (K ₁).
	j	CO5 Discuss Wi-Fi communication in a cellular system. (K ₂)

Section – B # 30 Marks (Medium Answer Type Questions)

Attempt **ALL** the questions. Each Question is of 6 marks (5 x 6 = 30 marks)

Q.2 (CO-1): Explain co-channel reuse ratio. Also derive the relationship between reuse ratio and cluster size. (K₂)

OR

Explain the various methods that increase the channel capacity and coverage. (K₂)

Q.3 (CO-2): Illustrate slow FHSS and fast FHSS in detail. (K₂)

OR

Discuss in detail about the different micro diversity concepts. (K₂)

Q.4 (CO-3): Illustrate the different types of Frequency Hopped Multiple Access with the help of proper hop timing diagram. (K₄)

OR

Discuss the performance of a RAKE receiver with a neat diagram. (K₃)

Q.5 (CO-4): Describe IMT 2000 in detail with complete specifications and features. (K₃)

OR

Discuss Wireless Local Loop. How it operates. (K₃)

Q.6 (CO-5): Write Short Note on (i) Light Fidelity (ii) Introduction to 4g and 5g

OR

Illustrate Wi-Max standard. What are main challenges present in of Wi-Max.(K₃)

Section – C # 50 Marks (Long Answer Type Questions)

Attempt **ALL** the questions. Each Question is of 10 marks.

Q.7 (CO-1): Attempt any ONE question. Each question is of 10 marks.

- a. Illustrate Mobile satellite communication in detail. Also explain main segments of Mobile Satellite communication. (K₃)
- b. Explain Frequency Reuse concept with the help of a proper cellular diagram. Also draw a cellular system with 19-cell reuse and locate the co-channel cells for this system. (K₃)

Q.8 (CO-2): Attempt any ONE question. Each question is of 10 marks.

- a. Illustrate the different types of Frequency Hopped Multiple Access with the help of a proper hop timing diagram. (K₃)
- b. Briefly discuss Maximal-Ratio combining and Equal-Gain combining. (K₄)

Q.9 (CO-3): Attempt any ONE question. Each question is of 10 marks.

- a. Briefly explain about linear and non-linear equalizers. (K₃)
- b. Explain FDMA and TDMA in detail with suitable diagrams. (K₃)

Q.10 (CO-4): Attempt any ONE question. Each question is of 10 marks.

- a. Explain Long term evolution (LTE) architecture in detail with diagram. Also give brief view of mobile satellite communication. (K₃)
- b. Explain GSM with the help of proper network architecture block diagrams. Also give a brief view of various Interface standards in GSM. (K₃)

Q.11 (CO-5): Attempt any ONE question. Each question is of 10 marks.

- a. Write short notes on Next Generation networks and its services. What are the fundamental characteristics for defining NGN. (K₄)
- b. Write Short Note on (i) Mobile Adhoc Network (MANET) (ii) Bluetooth (K₄).

