



R18 Regulation

Subject code:2E6DA

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VI Semester Supplementary Examinations, May 2025

CELLULAR AND MOBILE COMMUNICATIONS

(ECE)

Maximum Marks: 70

Date: 20.06.2025

Duration: 3 hours

- Note: 1. This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20 Marks)		Marks	CO	BTL
1	List out steps involved in operation of cellular systems.	2M	1	L1
2	List out limitations of conventional mobile telephone system.	2M	1	L1
3	Define cross talk.	2M	2	L1
4	Define frequency reuse distance.	2M	2	L1
5	List out the types of antennas used at cell site.	2M	3	L1
6	Define foliage loss.	2M	3	L1
7	Define frequency management.	2M	4	L1
8	State the purpose of voice channel.	2M	4	L1
9	Define intersystem hand-off.	2M	5	L1
10	What is meant by handoff algorithm.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	(a) Derive C/I from a normal case in an omnidirectional antenna system. (b) Discuss the limitations of conventional mobile telephone system.	6M 4M	1	L2
OR				
12	Explain briefly different ways of improving coverage and capacity in cellular systems.	10M	1	L2
13	(a) Discuss how antenna height effects the coverage and interference of cellular system. (b) Write short notes on Time diversity.	7M 3M	2	L2
OR				
14	Write short notes on i) frequency diversity and ii) Polarization diversity. Compare and contrast near end and Far end interferences.	10M	2	L2
15	a) Explain in detail about long distance propagation. b) Explain the role of directional antennas for interference reduction.	4M 6M	3	L2
OR				
16	(a) Write short notes on use of 1-mi intercept. (b) Discuss about area-to-area prediction for cell coverage.	3M 7M	3	L2

17	(a) Explain about the underlay-overlay arrangement. (b) Explain channel assignment to the cell sites based on adjacent channels.	6M 4M	4	L2
OR				
18	Explain different channel assignment strategies in detail.	10M	4	L2
19	a) Explain the concept of delaying Hand off and discuss about its advantages. b) Define dropped call rate. Discuss about relationship among capacity, voice quality, dropped call rate.	6M 4M	5	L2
OR				
20	Explain in detail the need for handoff and determine the probability of requirement of handoff.	10M	5	L2