



R22 Regulation

Subject code: 4P6DB

**TKR COLLEGE OF ENGINEERING AND TECHNOLOGY**  
(Autonomous, Accredited by NAAC with 'A+' Grade)

**B.Tech VI Semester Regular Examinations, May 2025**

**CELLULAR AND MOBILE COMMUNICATIONS**

(ECE)

Maximum Marks: 60

Date: 23.06.2025

Duration: 3 hours

- Note: 1. This question paper contains two parts A and B.  
2. Part A is compulsory which carries 10 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 (10X1M=10 Marks)		Marks	CO	Bloom Tx
1.a)	List the different parts of basic cellular system.	1M	CO1	L1
b)	Write the concept of Cell splitting?	1M	CO1	L2
c)	What is crosstalk? List the types.	1M	CO2	L2
d)	What is cochannel interference?	1M	CO2	L2
e)	Write the expression for the gain & beam width relationship.	1M	CO3	L2
f)	Define ground incident, elevation & reflection angles.	1M	CO3	L1
g)	What is frequency Management?	1M	CO4	L2
h)	What is Channel assignment?	1M	CO4	L2
i)	What is Forced Hand-Off?	1M	CO5	L2
j)	How is the dropped call rate measured?	1M	CO5	L2

**Part-B**

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	a) Explain the significance of following cellular concepts in detail i) Interference ii) System Capacity	5M	CO1	L2
	b) Explain the basic cellular system with neat diagram.	5M	CO1	L2
OR				
3	a) What is the concept of frequency reuse channels?	5M	CO1	L2
	b) Distinguish between the permanent splitting and dynamic splitting.	5M	CO1	L3
4	a) Explain space diversity antennas.	6M	CO2	L2
	b) Discuss the antenna parameters and their effects.	4M	CO2	L2
OR				
5	Distinguish between signal and co-channel interference received by the mobile unit and cell site.	10M	CO2	L3
6	a) Discuss the diversity schemes for interference reductions in both mobile unit and cell site.	5M	CO3	L2
	b) Explain the Umbrella pattern antennas.	5M	CO3	L2
OR				

7	Explain about Propagation over water and flat open area.	10M	CO3	L2
8	Discuss the concept of frequency management concern to the numbering the channels and grouping into the subset.	10M	CO4	L3
	OR			
9	Explain the various channel assignments to the cell sites and mobile units.	10M	CO4	L2
10	a) What is meant by a dropped call? And what are the factors that influence the dropped call rate?	6M	CO5	L2
	b) How can handoff be implemented based on signal strength? Explain.	4M	CO5	L3
	OR			
11	Explain the following terms: i) Forced Handoff    ii) Hard Handoff    iii) Delaying Handoff	10M	CO5	L2