R18 Regulation *Subject code:2E6DA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Supplementary Examinations, November 2025

CELLULAR AND MOBILE COMMUNICATIONS

(ECE)

Maximum Marks: 70 Date: 11.11.2025 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.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Derive C/I in a cellular system for normal case and Worst-case scenario with an omni-directional antenna system.	10M	1	L2
	OR			
12	Explain briefly different ways of improving coverage and capacity in cellular systems.	10M	1	L2
13	Discuss different diversity techniques briefly.	10M	2	L2
	OR			
14	Determine the real time co-channel interference measurement of mobile radio transceivers.	10M	2	L2
15	a) Discuss the effects of human made structures on cell coverage. b) List the various merits of Lee model.	5M 5M	3	L2
	OR			
16	a) Explain the mobile radio propagation over water and derive expression for power received. b) Explain how umbrella pattern antennas are used as the cell site antennas.	7M 3M	3	L2

17	Illustrate the frequency management chart and spectrum allocation for 666 channels and discuss the functions of set up and voice channels.	10M	4	L2
	OR			
18	Explain different channel assignment strategies in detail.	10M	4	L2
19	a) What is Handoff? Explain the handoff process in cellular systems. b) Explain how handoffs are implemented based on signal strength.	5M 5M	5	L2
	OR			
20	Explain in detail the need for handoff and determine the probability of requirement of handoff.	10M	5	L2