



Regulation R18

Subject code: 2E6DA

# TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

## B.Tech VI Semester Supplementary Examinations, February 2024

### CELLULAR AND MOBILE COMMUNICATIONS (Electronics and Communication Engineering)

Maximum Marks: 70

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 10 questions. Answer any 5 questions which carries 10M.  
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)	CO	Bloom Tx
1	List out steps involved in operation of cellular systems.		CO1	L1
2	List out limitations of conventional mobile telephone system.		CO1	L1
3	Define cross talk.		CO2	L1
4	Infer the effects of cell site components.		CO2	L1
5	List merits of point to point model.		CO3	L1
6	Give the general formula of Lee model in obstructive path.		CO3	L1
7	What is channel borrowing.		CO4	L1
8	List three techniques for increasing frequency spectrum utilization.		CO4	L1
9	What is meant by handoff initiation.		CO5	L1
10	What is mobile assisted handoff.		CO5	L1

#### Part-B

Answer all the questions		(5X10M=50 Marks)		
11	Describe the frequency reuse concept in cellular communication system and derive the equation for the frequency reuse ratio. [10]		CO1	L3
OR				
12	A full duplex wireless cellular system is allocated a total spectrum of 25 MHz and each simplex channel has 30 KHz RF bandwidth. Determine the following i) Total number of duplex channels available. ii) Number of channels per cell site if N=4 cell reuse pattern is employed. [10]		CO1	L4
13	(a) Discuss how antenna height effects the coverage and interference of cellular system. [6] (b) Write short notes on Time diversity. [4]		CO2	L2 L1
OR				
14	Explain the co-channel interference reduction factor and derive the general formula for C/I. [10]		CO2	L2

15	a) Explain in detail about long distance propagation. [6] b) Explain the role of directional antennas for interference reduction. [4]	CO3	L2 L2
	OR		
16	a) Write short notes on use of 1-mi intercept. [7] b) Discuss about area-to-area prediction for cell coverage. [3]	CO3	L1 L2
17	a) Describe grouping of voice, set up channels. [4] b) Write short notes on forcible borrowing channel assignment scheme. [6]	CO4	L2 L1
	OR		
18	a) Write short notes on reuse partition. [4] b) Write short notes on channel assignment to travelling mobile units. [6]	CO4	L2 L2
19	a) What is Handoff? Explain the handoff process in cellular systems. [5] b) Explain how handoffs are implemented based on signal strength. [5]	CO5	L2 L3
	OR		
20	Explain about: a) Intersystem handoff [5] b) Forced handoff. [5]	CO5	L2 L2