

Test: CLAT- 1

Date:12.6.2024

Course Code & Title: 18ECC301T Wireless Communication

Duration: 3:10- 4:00 PM

Year & Sem: IV& VII

Max. Marks: 25

Course Articulation Matrix:

18ECC301T_Wireless Communication	PROGRAM OUTCOMES												PROGRAM STUDENT OUTCOMES		
COURSE OUTCOMES	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Interpret the concepts of Wireless communication and basic cellular networks	3	-	-	3	-	-	-	-	-	-	-	2	-	-	-
Analyze different Radio wave propagation models for cellular communication	-	3	-	3	-	-	-	-	-	-	-	-	-	-	3
Apply different multipath propagation channel models in wireless systems	-	3	3	-	-	-	-	-	-	-	-	-	-	-	2
Illustrate the Link performance improvement techniques	-	3	-	-	-	-	2	-	-	-	-	-	-	-	3
Summarize different wireless communication standards and systems	-	-	2	-	-	2	-	-	-	-	-	-	2	-	-

Part – A (5x1= 5Marks)

Q. No	Answer all the questions	Marks	BL	CO	PO
1.	Identify the channel to be used for a transmission of device power level from mobile station to base station a. Forward Control Channel b Reverse Control Channel c Forward Voice Channel d Reverse Voice Channel	1	1	1	1
2.	The data rate in 3G standard is a. 144bps –2Kbps b. 144Kbps –2Gbps c. 144bps- 2Mbps d. 144Mbps- 2Gbps	1	3	1	4
3.	Increase in capacity, without degradation in _____ efficiency is caused by sectoring. a. Erlang b. Grade of service c.Trunking d.Meandering	1	1	1	1
4.	A spectrum of 25 MHz is allocated to a cellular system which uses two 25 KHz simplex channels to provide full duplex voice channels. What is the number of channels available per cell for 4 cell reuse factor? a.150 b. 125 c. 1000 d. 250	1	1	1	1
5.	A Signal to Interference ratio of 18.66dB with 6 co channels in the first tier of the system and with a path exponent value of 4.What will be the co -Channel reuse ratio ? a. 3 b. 4.58 c.6 d.6.24	1	3	1	4

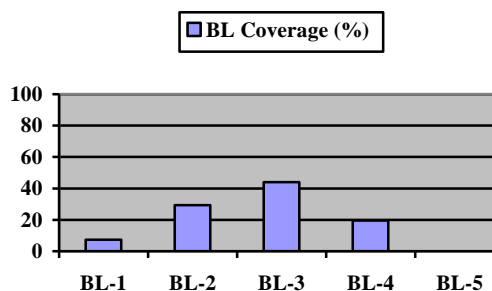
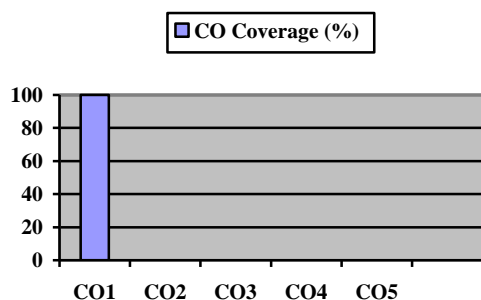
Part – B(2x 4= 8Marks)

Answer Any two questions

6.	Discuss the concept of cell sectoring to improve capacity of a cellular system.	4	4	1	4
7.	Define co channel reuse ratio and What is the co-channel reuse	4	3	1	4

	ratio for a cluster size 7.								
8.	How many users can be supported for 0.5% blocking probability for the following number of trunked channels in a blocked call cleared system? (a) 10 (b) 20. Assumed that each user generates 0.1 Erlangs of traffic.					4	4	1	4
	No: of Channels	Capacity in Erlangs for grade of service							
		=0.01	=0.005	=0.002	=0.001				
	2	0.153	0.105	0.065	0.046				
	4	0.869	0.701	0.535	0.439				
	5	1.36	1.13	0.900	0.762				
	10	4.46	3.96	3.43	3.09				
	20	12.0	11.1	10.1	9.41				
Part – C (1 x 12= 12Marks)									
Answer all the questions									
9a.	With the help of timing diagram, explain how a call is initiated by a landline to a mobile user.					12	3	1	12
(OR)									
9b.	Elaborate on the types of handoff based on the cell, BSC and MSC switching.					12	2	1	1

Course Outcome (CO) and Bloom's level (BL) Coverage in Questions



Evaluation Sheet

Name of the Student:

Register No.:

Part – A (5x1= 5 Marks)					
Q. No	CO	PO	Maximum Marks	Marks Obtained	Total
1	1	1	1		
2	1	4	1		
3	1	1	1		
4	1	1	1		
5	1	1	1		
Part – B (2x 4= 8 Marks)					
6	1	4	4		
7	1	4	4		
8	1	4	4		
Part- C (1 x 12 =12 Marks)					
9a	1	1	12		
9b	1	1	12		

Consolidated Marks:

CO	Maximum Marks	Marks Obtained
1	25	
Total	25	

PO	Maximum Marks	Marks Obtained
PO-1	15	
PO-4	14	
PO-12	12	
Total	41	

Signature of Course Teacher