GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2021
MOBILE COMMUNICATION AND NETWORK
EC802C

TIME ALLOTTED: 3 HOURS **FULL MARKS: 70**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable

GROUP – A
(Multiple Choice Type Questions)

Answer any ***ten*** from the following, choosing the correct alternative of each question: **10×1=10**

			Marks	CO No
1.	i)	Maximum data rate for a 4G network is a) 100 Kbps b) 1 Mbps c) 100 Mbps d) 1 Gbps	1	CO1
	ii)	Commonly used mode for 3G networks is a) TDMA b) FDMA c) TDD d) FDD	1	CO4
	iii)	3G W-CDMA is also known as a) UMTS b) DECT c) DCS-1800 d) ETACS	1	CO5
	iv)	Cells using same set of frequencies are called a) neighbouring cells b) adjacent channel cells c) co-channel cells d) clusters	1	CO2
	v)	Cell splitting increases the capacity of a mobile system since it increases the number of times that _____ are reused. a) channels b) time-bands c) frequencies d) codes	1	CO2
	vi)	Delay in hand offs is caused due to a) Week signal conditions b) High traffic conditions c) Un availability of the channel d) All of these	1	CO2

vii)	Mobile IP refers to a) mobility b) IP tuning c) IP within IP d) all of these	1	CO5
viii)	The basic frequency band used in GSM is a) 900 MHz b) 1100 MHz c) 1800 MHz d) 1960 MHz	1	CO2
ix)	Hexagonal cells are used for radio coverage because a) it uses maximum area of coverage b) fewer number of cells are required c) it approximates circular radiation pattern d) all of these	1	CO2
x)	Modulation scheme used in GSM is a) QPSK b) FSK c) OOK d) GMSK	1	CO3
xi)	Bluetooth link uses radio waves of frequency a) 2.4 MHz b) 2.4 GHz c) 3.6 GHz d) All of these	1	CO4
xii)	GPRS was launched in the following generation of mobile communication a) 2G b) 2.5G c) 3G d) 4G	1	CO5

GROUP – B
(Short Answer Type Questions)

Answer any ***three*** from the following: **3×5=15**

			Marks	CO No
2.		Describe cell splitting and mention its advantages.	5	CO2
3.	a)	What is hand-off?	2	CO2
	b)	Differentiate between Hard hand-off and Soft hand-off.	3	CO2
4.		Describe the GSM call set up procedure.	5	CO4
5.		Compare various multiple access techniques for wireless communication.	5	CO3
6.	a)	What is mobile internet protocol?	2	CO5
	b)	Explain tunneling and encapsulation.	3	CO5

GROUP – C
(Long Answer Type Questions)

Answer any ***three*** from the following: **3×15=45**

			Marks	CO No
7.	a)	Explain different mechanisms of multipath propagation.	5	CO2
	b)	What do yu mean by fading? Describe the concept of slow and fast fading.	5	CO2
	c)	What do you mean by co-channel cell? Determine the distance from a nearest co-channel cell for a cell having radius of 0.64 km and a reuse factor 12.	5	CO2
8.	a)	Discuss the concept of 'Cell cluster' and 'Frequency Reuse' in cellular communication.	5	CO2
	b)	What is cell sectorization? Write down its advantages.	5	CO2
	c)	Explain fixed and dynamic channel assignment schemes in cellular communication.	5	CO2
9.	a)	Discuss the concept of CDMA. How it differs from FDMA.	4	CO3
	b)	Explain GSM architecture with proper diagram. Discuss different channels used in GSM communication system.	6	CO3
	c)	Compare GSM with CDMA.	5	CO3
10.	a)	Explain about adaptive multiple antenna techniques.	5	CO5
	b)	Explain IEEE 802.11 architecture with proper diagram.	5	CO4
	c)	Discuss different WLAN technologies in brief.	5	CO4
11.		Write short notes on any *three* of the following:		
	a)	GPRS	5	CO4
	b)	MIMO	5	CO5
	c)	WiFi Vs Bluetooth	5	CO5
	d)	4G over 3G networks	5	CO1
	e)	IMT-2000	5	CO4