GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2022
MOBILE COMMUNICATION AND NETWORK
EC604A

TIME ALLOTTED: 3HR **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)	Cells using same set of frequencies are called a. neighbouring cells b. adjacent channel cells c. co-channel cells d. clusters	1	CO2
	(ii)	The basic frequency band used in GSM is a. 900 MHz b. 1100 MHz c. 1800 MHz d. 1960 MHz	1	CO3
	(iii)	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
	(iv)	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
	(v)	Maximum data rate for a 4G network is a. 100Kbps b. 1Mbps c. 100 Mbps d. 1 Gbps	1	CO1

(vi)	Antenna sectorization is an example of a. FDMA b. CDMA c. SDMA d. TDMA	1	CO2
(vii)	When a call is transferred from one cell to another as the caller crosses the cell boundary, _____ process takes place. a. call origination b. cross-talk c. paging d. hand-off	1	CO2
(viii)	Modulation scheme used in GSM is a. QPSK b. FSK c. OOK d. GMSK	1	CO3
(ix)	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
(x)	Mobile IP refers to a. mobility b. IP tuning c. IP within IP d. all of these	1	CO5
(xi)	The standard interface that connects a BTS to BSC is called a. A b. A-bis c. B d. U_m	1	CO3
(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*** of the following: **3 ×5 = 15**

		Marks	CO No.
2.	Explain the principle of TDMA. Compare TDMA with FDMA.	5	CO3
3.	Defined cell splitting with its advantages.	5	CO2
4.	What is mobile internet protocol? Discuss tunnelling and encapsulation.	5	CO5

5.		Define hand-off. Differentiate between Hard hand-off and Soft hand-off.	5	CO2
6.		What do you mean by IEEE 802.11 standard? Discuss its features.	5	CO4

GROUP – C
(Long Answer Type Questions)

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

			Marks	CO No.
7.	(a)	Explain the principle of 'Frequency Reuse' in cellular communication. Mention its benefits.	6	CO2
	(b)	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
	(c)	Discuss fixed and dynamic channel assignment schemes in cellular communication.	4	CO2
8.	(a)	Define spread spectrum with its advantages.	5	CO2
	(b)	Draw and explain GSM architecture. Discuss different channels used in GSM communication.	6	CO3
	(c)	Compare GSM with CDMA. What do you mean by IMT-2000?	4	CO3
9.	(a)	Describe different mechanisms of multipath propagation.	5	CO2
	(b)	Define fading. Discuss the concept of slow and fast fading.	5	CO2
	(c)	Define cell sectorization with its advantages.	5	CO2
10.	(a)	Discuss the concept of CDMA. Mention its differences with FDMA.	5	CO3
	(b)	Draw and explain IEEE 802.11 architecture.	6	CO4
	(c)	Discuss different WLAN transmission technologies in brief.	4	CO4
11.		Write short notes on any ***three*** of the following topics:	3×5	
	(a)	4G over 3G networks	5	CO1
	(b)	GPRS	5	CO1
	(c)	MIMO	5	CO5
	(d)	Compare WiFi and Bluetooth	5	CO4
	(e)	Call set-up procedure	5	CO2