Register Number: ……..

M.E DEGREE EXAMINATIONS: MAY / JUNE 2013

Second Semester

Communication System

COM504 Mobile Communication Networks

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

1. List the three important radio propagation phenomena at high frequencies.
2. Why is power control important in CDMA?
3. Find the theoretical maximum data rate that can be supported in a 200Khz channel for SNR 10dB.How does this compare to the GSM standard.
4. What are the bandwidth and chip rate used in WCDMA?
5. Using QPSK modulation and convolution coding, the IS95 digital cellular system require 3dB<Sr <9dB.The Bandwidth of thechannel is 1.25MHz and transmission rate is 96.00bps.Find the capacity of a single cell.
6. What is SS7?
7. Why are the MAC services in the recommendations of IEEE 802.11 are not provided in the traditional LAN?
8. Enumerate the features of Mobile Ad-Hoc network.
9. How is sensor data protected during wireless transmission?
10. What is called Wormhole attack?

PART B (5 x 16 = 80 Marks)

11. a) (i) Explain the elementary principles of cellular telephony. (8)

    (ii) Compare the features of first, second and third generation networks. (8)

(OR)

    b) (i) What is the need for channel division techniques? Compare their performance. (8)

    (ii) Discuss about network planning and resource allocation. (8)

12. a) (i) Differentiate between block codes and convolution codes. (8)

    (ii) Explain the features of GSM and GPRS. Determine the capacity of GSM for K=3. (8)

(OR)

	b)	(i)	Explain the difference between the effects of power control on the capacity of TDMA and CDMA systems.	(8)
		(ii)	If W=1.25mhz,R=9600bps,minimum acceptable Eb/N0 is found to be 10 DB .Determine the maximum number of users that can be supported in a single cell CDMA system using (a)Omni directional base station antenna and no voice activity detection.(b)Three sectors at the base station and activity detection with £=3/8 .Assume the system is interference limited.	(8)
13.	a)	(i)	With neat diagram ,explain the architecture of mobile network	(8)
		(ii)	Explain the key role of signaling interfaces and network entities.	(8)
			(OR)	
	b)	(i)	What is the function of MSC,G-MSC and AuC?Explain.	(8)
		(ii)	Discuss the call and network management procedures in mobile network.	(8)
14.	a)	(i)	Explain the architectural difference and similarity between HIPERLAN and IEEE 802.11.	(8)
		(ii)	Explain the DCF access scheme with handshaking.	(8)
			(OR)	
	b)	(i)	With reference to wireless local area network, discuss the concept of routing, energy efficiency and clustering.	(8)
		(ii)	Explain the general characteristics of HIPERLAN.	(8)
15.	a)	(i)	With neat diagram ,explain the design objective and application of wireless sensor network.	(8)
		(ii)	What is meant by data dissemination and data gathering? Explain	(8)
			(OR)	
	b)	(i)	Explain the MAC protocol for sensor network	(8)
		(ii)	Discuss factors to be considered in the determination of quality of sensor networks.	(8)

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