GUJARAT TECHNOLOGICAL UNIVERSITY ME - SEMESTER–I(New course)• EXAMINATION – WINTER- 2015

Su	bject	Code: 2714401 Date: 01/01/20	Date: 01/01/2016	
Subject Name: Wireless Communication Theory Time:2:30 pm to 5:00 pm Total Mark			s: 70	
Inst	truction 1. 2. 3.	ns: Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.		
Q.1	(a)	Explain briefly: (1) IP Encapsulation (2) LMDS	04 03	
	(b)	Suppose that a mobile station is moving along a straight smooth surface between base stations BS1 and BS2. The distance between BS1 and BS2 is 2000 m. Assume that the received power in dBm at Base station is given by $P_r=P_0-10*n*\log (d/d_0)$, where d is the distance between mobile station and base station in meters. P_0 is the power at distance d_0 from the mobile. Assume that $P_0=0dBm$ and $d_0=1m$. Let n denote path loss exponent which is 2.9. Given that the minimum usable level of signal is -88dBm and the mobile is currently connected to BS1, determine the hand-off margin if hand-off time is 4.5 seconds and the mobile speed is 100 km/hr.	07	
Q.2	(a)	Explain co-channel interference and derive the equation of Signal to Interference Ratio (SIR) for hexagonal geometry with N=7.	07	
	(b)	Describe any one strategy to improve the system capacity with neat sketch. OR	07	
	(b)	How the channel assignment is done in cellular networks? Describe all the channel assignment strategies.	07	
Q.3	(a) (b)	Compare GSM technique with CDMA technique for mobile communication. What is meant by "Multicarrier multiple access"? Explain the concept of OFDMA with neat sketch.	07 07	
		OR	• -	
Q.3	(a) (b)	What is meant by "Packet Radio Multiple Access"? Explain any one PRMA protocol.	07 07	
Q.4	(a) (b)	Explain evolution of IMT 2000 standard with its key features. Explain DSSS transmitter and receiver.	07 07	
04	(9)	OR Explain UMTS in detail	07	
Q.4	(a) (b)	Explain FHSS transmitter and receiver. Also explain fast and slow FHSS.	07	
Q.5	(a)	Explain security related issues in Wireless Networks.	07	
	(b)	Explain IEEE 802.11 WLAN.	07	
05	(a)	UK Explain IEEE 802 16 standard	07	
Q.3	(a) (b)	Explain GPRS in detail.	07	
