GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2171004   **Date: 04/05/2017**
Subject Name: Wireless Communication
Time: 02.30 PM to 05.00 PM   **Total Marks: 70**
Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Define following terns: (1) Forward Channel (2) Reverse Channel (3) Control Channel (4) Paging System (5) Hand-off (6) Base Station (7) Full Duplex Systems	**07**
	(b)	What is interference? Explain the difference between co-channel interference and adjacent channel interference. Derive equation for signal to interference ratio.	**07**
Q.2	**(a)**	A unit gain antenna with a maximum dimension of 1 m produces 50 W power at 900 MHz. Find (i) the transmit power in dBm and dB, (ii) the received Power at a free space distance of 5 m and 100 m using free space distance formula.	**07**
	(b)	(i) Why hexagonal cell shape is preferred in cellular architecture?	**03**
		(ii) Explain the concept of umbrella cell.	**04**

OR

	(b)	Explain different channel assignment strategies in detail.	**07**
Q.3	**(a)**	Explain the concept of cell splitting with require figure.	**07**
	(b)	Explain Free space propagation model with necessary equations.	**07**

OR

Q.3	**(a)**	Describe empirical formula for path loss in mobile networks.	**07**
	(b)	What is diffraction? Briefly explain knife-edge diffraction model with figure.	**07**
Q.4	**(a)**	Describe Time Division Multiple Access (TDMA) in detail. Write the equation for efficiency of TDMA and number of channels in TDMA system.	**07**
	(b)	Explain the following term with reference to CDMA	**07**
		(i) Power Control	
		(ii) Soft hand-off	
		(iii) Frequency hopping	

OR

Q.4	**(a)**	Write a short note on OFDM.	**07**
	(b)	Describe a Rake receiver in CDMA.	**07**
Q.5	**(a)**	With the help of a neat sketch, describe GPRS architecture.	**07**
	(b)	Write a short note on UWB radio.	**07**

OR

Q.5	**(a)**	With neat diagram explain wireless Ad-Hoc network.	**07**
	(b)	Write a short note on software defined radio.	**07**

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