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BIEL-018

B.Tech. – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

00986

Term-End Examination

June, 2015

BIEL-018 : WIRELESS COMMUNICATION

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **five** questions. All questions carry equal marks. Missing data may be suitably assumed. Use of scientific calculator is permitted.*

1. (a) What are the three basic propagation mechanisms ? Explain each of them. 7

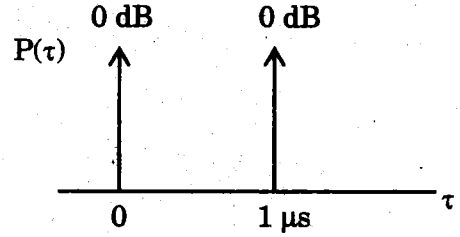
(b) Why is path loss model required in wireless communication ? Explain log-normal path loss model. 7

2. (a) Differentiate between FDMA, TDMA and SDMA techniques. 7

(b) Explain the various types of diversity techniques in wireless communication system. 7

3. (a) What are Vocoders ? Explain channel vocoders in detail. 7

(b) Compute the RMS delay spread for the following power delay profile : 7



4. (a) Define frequency reuse concept. How is it used to increase cellular system capacities ? Explain with suitable example. 7

(b) What are the different methods used for minimization of co-channel and adjacent channel interference ? 7

5. (a) Write down the different features of 2G and 3G wireless systems. Name some wireless standards used around the world under second generation (2G) of wireless system. 7

(b) A receiver is located 10 km from a 50 W transmitter. The carrier frequency is 900 MHz, free space propagation is assumed, $G_t = 1$ and $G_r = 2$. Find

(i) the power of the receiver

(ii) the magnitude of E-field at the receiver antenna. 7

6. (a) Consider a transmitter which radiates a sinusoidal carrier frequency of 1850 MHz. For a vehicle moving at 60 mph, compute the received carrier frequency, if the mobile is moving (i) directly towards the transmitter (ii) directly away from the transmitter and (iii) in a direction which is perpendicular to the direction of arrival of the transmitted signal. 7

(b) Draw and explain the working of Linear Predictive Coders (LPC). 7

7. Write short notes on any ***two*** of the following : *2×7=14*

(a) RAKE Receiver

(b) DS-SS

(c) Impulse response model and parameters of multipath channels