01611

B.TECH. ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

December, 2013

BIEL-018 : WIRELESS COMMUNICATION

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt **any seven** questions.*
*Each questions carry **equal** marks.*

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1. (a) Describe the different types of services provided by wireless communication system. **2x5=10**

(b) Discuss the requirements and challenges in wireless communication system.

2. (a) Describe the reason for using hexagonal geometry in the design of cellular system.

(b) Explain how is the call handing capacity of a cellular system improved ? **2x5=10**

3. Consider a wireless communication system having a transmitter height 'ht' and receiver height 'hr'. Determine the path difference, phase difference and time delay between the direct path and reflected path. The distance between transmitter and reciever is 'd'. **10**

4. (a) Discuss how trade off is made between diversity improvement and antenna height.
   (b) Discuss the various types of fading effects. **2x5=10**

5. (a) What is Pseudo-random noise ?
   (b) Discuss the advantages and disadvantages of OFDM. **2x5=10**

6. (a) Compare and contrast various adaptive equalization algorithms. **2x5=10**
   (b) Discuss the diversity techniques in brief.

7. Consider a communication receiver, where four branch diversity is used, each branch receives an independent Rayleigh fading signal. If the average SNR is 20dB, determine the probability that the SNR will drop below 10dB. Compare this case with the single receiver without diversity. **10**

8. (a) Discuss the characteristics of speech signals.
   (b) Discuss the advantages of uniform quantization over non uniform quantization. **2x5=10**

9. (a) Discuss how the coverage and capacity of a cellular system is improved.
   (b) Compare and contrast between 2G and 3G wireless system. **2x5=10**

10. Write short notes on **any two** of the following : **2x5=10**
   (a) RAKE Receiver
   (b) GSM architecture
   (c) Frequency reuse
