

UNIT IV

SIGNAL PROCESSING IN WIRELESS SYSTEMS

Part-A (2Marks)

1. Define diversity
2. List the types of diversity techniques available
3. Define Interleaving
4. Define Equalization.
5. Define adaptive Equalization.
6. List the types of Equalization techniques available
7. What is meant by decision feedback equalization?
8. Mention two advantages and disadvantages of LMS algorithm
9. Define vocoders
10. Which one is the most popular vocoding system? Why?
11. What are the approaches available in LPC excitation methods?
12. What are error detection and error detection codes?
13. Write Shannon's formula
14. Define Forward Error Correction Codes.
15. What is distance of a code?
16. What is Weight of a code?
17. Define hamming distance
18. Describe Generator matrix and Parity Check Matrix
19. What are the processing blocks of GSM codec?
20. Describe Logarithmic Area Ratio (LAR)

Part-B

1. What is Non-linear equalization? Explain the two methods used in 2G and 3G system
2. Explain LMS and Recursive Least Square algorithm.
3. Explain adaptive equalization algorithm.
4. Explain all the diversity techniques.
5. With neat diagram explain RAKE receiver.
6. With an example describe the steps involved in channel encoding and decoding process.
7. A) With a generator polynomial $g(x) = 1+x^2+x^3$
find the Codeword of the message
 $m = [0100]$ for a (7, 4) code and verify the authenticity of the codeword
8. Draw the block diagram of a LPC coding system & explain the different types of LPC used for wireless systems.
9. With neat diagram explain the operations of GSM Speech Encoder/decoder.