B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECMBER 2008

Fifth Semester

(Regulation 2004)

Electronics and Communication Engineering

EC1301—COMMUNICATION THEORY

PART A (2 Marks)

1. Give the applications of SSB SC-AM.
2. Compare low level modulation and high level modulation.
3. What is diversity reception?
4. State the disadvantages of FM.
5. Define noise factor.
6. What is thermal noise?
7. What is capture effect?
8. Write the expression of the SNR for a synchronous detector.
9. State any four properties of Entropy.
10. Give the expressions for channel capacity of a Gaussian channel.

PART B (16 Marks)

1. a. With a neat block diagram explain the SSB transmissions.
Explain the operation of a ring modulator. State its advantages.

OR

b. Explain frequency translation.
Explain time division multiplexing.

2. a. With a neat sketch explain the Armstrong method of FM transmission.
Explain FM stereo multiplexing.

OR

b. What is principle of FM detection? Explain how the modulation signal is extracted from frequency modulation wave.
Compare wide band FM narrow band FM.

3. a. Derive the Friis formula.
Explain noise effect on bandwidth.

OR

b. What is noise temperature? Deduce the expression for effective noise temperature for a cascaded system.
Explain narrow band noise.

4. a. Discuss noise performance of square law detection.
Explain how threshold extension is achieved by FMFB technique.

OR

b. Explain how threshold improvement is done through de-emphasis.

5. a. Explain BSC and BEC.

OR

b. A discrete memory less has a alphabet given below. Compute two different Huffman codes for this source, hence for each of the two
Codes. Find i. The average code-word length.
ii. The variance of the average code-word length over the ensemble of source symbol.

SYMBOL S0 S1 S2 S3 S4
PROBABILITY 0.55 0.15 0.15 0.10 0.05