

R15

Code No: 125AK

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, November/December - 2017

ANALOG COMMUNICATIONS

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

- 1.a) What are the advantages of ring modulator? [2]
- b) What is the difference between coherence detection and noncoherent detection? [3]
- c) What are the advantages of SSB over DSB? [2]
- d) What are the applications of VSB? [3]
- e) Give the average power of an FM signal. [2]
- f) What are the disadvantages of FM systems? [3]
- g) Define Shot noise? [2]
- h) What are the sources of Noise? [3]
- i) Define Intermediate frequency? [2]
- j) What are the advantages of PPM over PWM? [3]

PART - B

(50 Marks)

- 2.a) Explain the generation of AM signal using Switching Modulator.
 - b) What is the effect of frequency and phase over error in demodulation of DSB-SC wave using synchronous detector. [5+5]
- OR**
- 3.a) Explain about balanced modulator to generate DSB-SC signal.
 - b) Discuss AM in detail in time and frequency domains. Derive the expression for power content of an AM signal. [5+5]
- 4.a) Draw the block diagram for the generation of a VSB signal and explain the principle of operation.
 - b) Compare AM with DSB-SC and SSB-SC. [5+5]
- OR**
- 5.a) Explain the generation AM SSB Modulated waves using Phase discrimination method for generating.
 - b) What are the Applications of different AM Systems? Explain any one. [5+5]

- 6.a) Derive an expression for single tone FM wave and Wide band FM wave.
b) With neat sketch explain the working principle of Zero crossing detector. [5+5]

OR

- 7.a) Discuss threshold effect in angle modulation systems.
b) Explain the Comparison of FM over AM. [5+5]

- 8.a) Discuss the noise performance in DSB-SC receiver in detail.
b) Derive the noise figure for cascade stages. [5+5]

OR

- 9.a) What is Narrowband Noise discuss the properties of the quadrature components of Narrowband Noise.
b) With neat sketches explain the Pre-emphasis and de-emphasis. [5+5]

- 10.a) What are the advantages of Superhetrodyne receiver over Tuned radio frequency receiver? Explain.
b) Discuss the effect of aliasing due to under sampling. [5+5]

OR

- 11.a) Differentiate between simple, delayed and amplify AGC and explain the function with the help of neat diagram.
b) With neat sketch explain the TDM multiplexing and demultiplexing. [5+5]

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