R18

Code No: 154AC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year II Semester Examinations, August/September - 2021
ANALOG AND DIGITAL COMMUNICATIONS
(Electronics and Communication Engineering)

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks

1.a) Describe the single tone modulation of SSB with necessary equations. Assume both modulating and carrier signals are sinusoids.
b) With the help of circuit diagram explain the operation of square law modulator for AM. [7+8]

2.a) With neat diagrams, explain about the VSB modulation system and also explain its applications.
b) When the modulation percentage is 75, an AM transmitter produces10KW. How much of this is carrier power. What would be the percentage power saving if the carrier and one of the side bands were suppressed? [7+8]

3.a) Explain the detection of FM wave using balanced frequency discrimination.
b) State and explain the concept of transmission bandwidth. [9+6]

4.a) Draw and explain how PLL is used in detection of FM signal.
b) What is the purpose of pre-emphasis and de-emphasis filtering? Explain the filtering process with suitable sketches. [7+8]

5.a) What is AGC? What are different types of AGC? With a neat diagram explain a simple AGC circuit.
b) List and explain the characteristics of RF section. [9+6]

6.a) Explain the working of tuned radio frequency receiver with the help of a block diagram.
b) Compare AM and FM Receivers. [9+6]

7.a) Explain, how a PPM signal can be generated from PWM signal.
b) Compare PAM, PWM and PPM pulse modulation technique. [7+8]

8.a) Derive the probability error of QPSK system.
b) Derive the bit error probability of a coherent ASK signaling scheme. [7+8]

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