Hall Ticket No | | | | | | | | | | | Question Paper Code: AECB12

INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)

B.Tech IV Semester End Examinations (Regular), November – 2020

Regulation: IARE–R18

ANALOG COMMINUCATION

Time: 2 Hours **(ECE)** **Max Marks: 70**

Answer any Four Questions from Part A
Answer any Five Questions from Part B

PART – A

1. Explain in detail the Costas loop for AM detection. **[5M]**
2. Describe the single tone modulation of SSB. Assume both modulating and carrier signals are sinusoids. **[5M]**
3. Compare and contrast narrowband and wideband FM. **[5M]**
4. Explain the significance of noise and its effects. **[5M]**
5. List the requirements of radio receivers. **[5M]**
6. Elucidate the operation of square law modulator. **[5M]**
7. Demonstrate the coherent detection of SSBSC AM signal. **[5M]**
8. Write about the phase discriminator method to detect the FM wave. **[5M]**

PART – B

9. Discuss the main objectives of a communication system design. What are the primary resources of any communication system? **[10M]**
10. Paraphrase the principle of double side band with suppressed carrier modulation. **[10M]**
11. Elaborate in detail the frequency discrimination method for generation of SSBSC AM. **[10M]**
12. Illustrate the operating principle of VSBSC AM signal and write its advantages, disadvantages and applications. **[10M]**
13. Write short notes on frequency deviation and mention the applications of angle modulation. **[10M]**
14. A sinusoidal modulating waveform of amplitude 5 V and a frequency of 2 KHz is applied to FM generator, which has a frequency sensitivity of 40 Hz/volt. Calculate the frequency deviation, modulation index, and bandwidth. **[10M]**
15. Determine the SNR for an AM system. Write in detail about pre-emphasis. **[10M]**
16. At a room temperature of 300K, calculate the thermal noise generated by two resistors of 10KΩ and 20 KΩ when the bandwidth is 10 KHz. **[10M]**
17. For a 24 different message signals, each band limited to 4kHz are to be multiplexed and transmitted. What is the minimum bandwidth required for each signal. **[10M]**
18. List and discuss the factors influencing the choice of the intermediate frequency for a radio receiver. **[10M]**