B.E. IV Semester Examination
BE - IV/6(A)
214655
Com. Engg.
Course No. - ECE -
Communication Engg.

Time Allowed- 3 Hours   *Maximum Marks-100*

Note: There are eight questions, attempt five questions in all selecting at least two from each section.

Section - A

1. a) What is the need of modulation?   (5)
    b) Explain noise figure.   (5)
    c) Describe the relationship between the carrier and sideband powers in an AM DSBFC wave.   (10)

2. a) Define AM. Derive the expression for AM wave.   (10)

    b) Explain working of balanced modulation for generation of DSB-Sc signal.   (10)

3. a) Differentiate between   (5)
    i) Periodic and non-periodic signal.

    ii) Analog and digital signal.

    b) Find the fourier transform of gate pulse of width 'C' & amplitude 'A' Also draw its spectrum.   (15)

4. a) Differentiate between narrowband and wideband FM. **(5)**

    b) Compare the advantages and disadvantages of angle modulation with amplitude modulation. **(5)**

    c) The maximum frequency deviation in an FM is 10KHz and the signal frequency is 10KHz. Find out the band width using Carson's rule and the modulation index. **(10)**

Section - B

5. a) Explain delta modulation with the help of transmitter and receiver diagrams. **(15)**

    b) What is Quantizing error? Illustrate with an example. **(5)**

6. a) What is Companding. **(5)**

    b) Explain in detail the difference between natural sampling and flat top sampling? **(10)**

    c) What is Nyquist Sampling rate? **(5)**

7. a) How the granular noise can be reduced? **(5)**

    b) What is frequency shift keying? Explain in detail about FSK transmitter and receiver. **(15)**

8. a) What is entropy? **(5)**

    b) State channel capacity theorem. **(5)**

    c) Explain Shannon - Fano coding with example. **(10)**

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