Code No: R1922044 **R19** SET - 1

II B. Tech II Semester Supplementary Examinations, February - 2022
ANALOG COMMUNICATIONS
(Electronics Communication Engineering)

Time: 3 hours Max. Marks: 75

Answer any **FIVE** Questions each Question from each unit
All Questions carry **Equal** Marks
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1 a) What is Modulation? Explain different modulation methods.

b) A carrier with amplitude modulated to a depth of 50% by a sinusoidal, produces side band frequencies of 5.005 MHz and 4.995MHz. The amplitude of each side frequency is 40V. Find the frequency and amplitude of the carrier signal.

Or

2 a) Define modulation and explain the need of modulation.

b) With neat diagrams and waveforms, explain the generation of AM signal using square law modulator.

3 a) With neat diagram, explain the generation of DSB-SC signal using ring modulator.

b) Explain coherent detection of VSB-SC waves.

Or

4 a) Explain the generation of SSB signal using phase discrimination method.

b) With the help of the block diagram explain the principle of FDM and mention its applications.

5 a) An FM signal is given as $s(t)=10\text{Cos}(2\pi 10^6 t+20\text{Sin}(2\pi 10^3 t))$. Then calculate: (i) Carrier frequency, (ii) Modulating signal frequency, (iii) Maximum frequency deviation, (iv) Power dissipated in a 10 Ω resistor for the given signal.

b) Draw the block diagram and explain the generation of WBFM using indirect method.

Or

6 a) In a FM system, the frequency sensitivity of the modulator is 1 kHz/V. A sinusoidal modulating signal of amplitude 15 V and frequency 3 MHz is applied, Calculate: (i). Peak frequency deviation (ii). Modulating index.

b) Explain the detection of FM using phased locked loop.

7 a) Give different classification of Transmitters. With neat diagram, explain any one type of transmitter.

b) Briefly explain the characteristics of RF section.

Or

8 a) With respect to Radio Receiver measurements, explain about Selectivity and fidelity.

b) Write the comparisons between TRF and super heterodyne receivers.

9 a) With all necessary expressions and spectral representations, prove that figure of merit for SSBSC system is unity.

b) Explain the need for pre-emphasis and De-emphasis in detail.

Or

10 a) Derive the equation for output signal to noise ratio for DSB-SC system.

b) With neat block diagram, explain PPM generation and detection.
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