Dr. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE - 402 103

Winter Semester Examination- Nov. 2019

Class: B. Tech. EXTC (Second Year) **Sem: IV**
Sub: Analog Communication Engineering (BTEXC402) **Time: 3 Hrs.**
Date:28/11/2019 **Max. Marks: 60**

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Instructions to Candidates:

1) **Attempt any five questions.**
1) **Illustrate the answers with neat sketches, diagram etc. wherever necessary.**
2) **Necessary data is given in the respective questions. If such data is not given it means its knowledge is a part of examination.**
3) **If some part or parameter is noticed to be missing, appropriate data may be assumed and should be mentioned clearly.**

Q 1 A	Define communication, Draw and explain basic block diagram of communication system.	(6M)
B	Define modulation; Explain the need of modulation in detail.	(6M)
2 A	For an AM wave with a peak unmodulated carrier voltage V_c = =10Vp, a load resistance R_L = 10Ω, and modulation index = 1, determine a. Powers of the carrier and the upper and lower sidebands b. Total sideband power. c. Total power of the modulated wave d. Draw the power spectrum. Repeat steps (a) through (d) for a modulation index m = 0.5.	(8M)
B	Calculate the percentage power saving when the carrier and one of the sidebands are suppressed in an AM wave modulated to a depth of (a) 100 percent, and (b) 50 percent.	(4M)
3 A	Draw the block diagram for an Armstrong indirect FM transmitter and describe its operation.	(8M)
B	Compare narrowband and wideband FM.	(4M)
4 A	With the help of neat block diagram explain functioning of a super heterodyne receiver list out significance.	(6M)
B	Explain the performance characteristics of receiver.	(6M)
5 A	Explain the linear diode (envelope) detector with detail circuit diagram and characteristics.	(6M)
B	With neat circuit diagram and necessary equations, explain the phase difference discriminator ratio detector.	(6M)
6 A	An amplifier has a noise figure of 4 dB, a bandwidth of 500Hz and an input resistance of 500Ω. Calculate the input signal voltage needed to yield an output SNR = 1 when the amplifier is connected to a signal source of 50Ω at 290K.	(4M)
B	Define noise. Explain the classification of noise in detail.	(8M)

Paper End