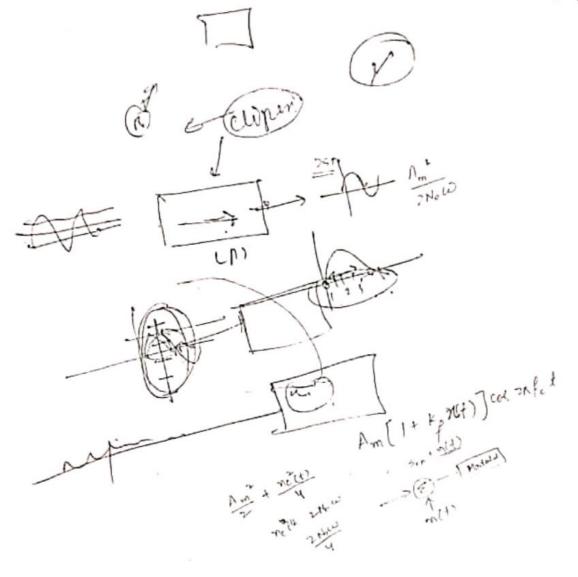
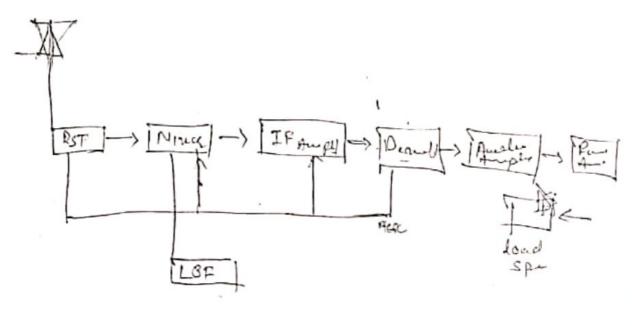
pepartment of Electronics and Communication Engineering National Institute of Technology Srinagar-190006

1	actional reservate of recumology Strangar-170000
1972	Major Examination (25 June, 2016)
/	B.Tech. 4th Semester (IT)
	A 1 1
· tart:	Communication Systems
asimum marks:	50 Time: 02 hours
[RAV	*
	Variation
OTE: (i) Attempt any four questions. All questions carry equal marks.	
	and clean figures where ever necessary
Q.1) (a) Explain th with all the ne	e generation of SSB-SC modulation by Phase discrimination method in detail cessary equations and diagrams.
Tax sinusoid	al message signal is transmitted through PCM system such that maximum.
	and the st most //o of peak to peak to
Find the mini	imum possible number of bits per sample required?
What are	the advantages of F.M over AM?
(c) What are	2 1 Medulation) transmitter in detail
(a) Explain th	the working of DPCM(Differential Pulse Code Modulation) transmitter in detail [6.5]
(Q.2) (a) Explain a	w if overcomes me are
and show no	[6]
(A) Describe	the operation of PSK transmitter and receiver. With modulation it is observed
(IB) Describe	odulated FM transmitter power is given by 100 Watts. With modulation it is observed
- 1 \ Laumma	adulated FM transmitter power is given by 100 waits.
(Q.3) (a) An uninc	hof the first order sideband in the spectrum is zero. Find Fig. 1. Side corrier frequency component? [3]
that(strength	For the first order sideband in the sponsor of the carrier frequency component? [2] [2] [2] [2]
(1)	Total sideband power?
	1 and and an entitle harder to the contract of
(11)	Total 2" order side that $J_2(3.8) = 0.2$ $J_2(3.8) = 0.4, J_1(4) = 0.37, J_2(3.8) = 0.2$
Given Jo(3	[5.5]
h	n the process of quantization in detail.
(b) Explain	in the process
	was questions.
(Q.4) Short ansy	ver type questions. ver type questions. $(2\pi \times 10^3 \text{ t})$ is transmitted through a 4-bit PCM system [2]
(a) When a	signal m(t) = 10 color error and bit rate for the system?
Then deter	mine maximum quartesk modulation schemes.
(b) Differe	ntiate between ASK and rose included in briefly the disadvantages of Delta Modulation [1]
(c) Explain	he block diagram of PCM. [1]
= (e) Detine	ampling theorem and also explain aliasing. [1]
0 1'.	den for avoiding diagonal cupping
(g) Condit	the spectrum of white noise.
(b) Draw t	the spectrum of white noise.

(b) Explain the operation of superheterodyne receiver in detail. Also, explain double spotting and how it is overcome.

[7.5]





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