

KRISHNA UNIVERSITY, Machilipatnam

<Notification Details>

Analog Communication Systems (13A04404)

B.Tech - (ECE)

Time: 3 hrs.

Max Marks: 70

Note: 1. Answer ALL the questions.**2. Question 1 is Compulsory.**

1.	Answer the following questions	10x2=20 Marks
a)	Why modulation is used in analog communication?	2M
b)	What are the disadvantages of double side band full carrier system?	2M
c)	Draw the phasor diagram of wide band frequency modulation	2M
d)	What is capture effect in FM ?	2M
e)	What are sources of noise that affect the quality of communication?	2M
f)	Calculate the input signal to noise ratio for an amplifier with an output signal to ratio of 16 dB and a noise figure of 5.4 dB.	2M
g)	List the advantages of PPM over PWM.	2M
h)	How the message can be recovered from PAM?	2M
i)	What is discrete memoryless channel?	2M
j)	List the properties of Channel Capacity.	2M
<u>UNIT-I</u>		
2.	a) What is the principle of Amplitude modulation? Derive expression for the AM wave and draw its spectrum.	05
	b) Obtain a relationship between carrier and side band powers in an AM DSBFC wave and explain how power distribution takes place in AM DSB FC system.	05
OR		
3.	a) Draw the circuit diagram of frequency mixer and explain about it.	05
	b) Explain the concepts of Carrier Acquisition in DSB.	05
<u>UNIT-II</u>		
4.	a) Describe the frequency analysis of Angle modulated waves. Explain their Bandwidth requirements.	06
	b) Elaborate the features of angle modulation.	04
OR		

MODEL QUESTION PAPER

5.	a)	Explain the working of a ratio detector for FM.	05
	b)	Explain the reactance modulator method of generation of WBFM. Why is it necessary to use AFC in this method of generation?	05
<u>UNIT-III</u>			
6.	a)	Explain the noise performance of SSB-SC scheme with the help of neat block diagram.	06
	b)	Compare and contrast DSB-SC and SSB-SC	04
OR			
7.	a)	Find the Noise bandwidth of an RC low pass filter and the relation with its 3dB bandwidth.	05
	b)	Explain the noise performance of PM systems.	05
<u>UNIT-IV</u>			
8.	a)	What is sampling? Explain natural and flat-top sampling and list the difference between these two types.	06
	b)	Explain the important parameters in Radio receiver measurements.	04
OR			
9.	a)	List and discuss the performance parameters of radio receivers in detail.	10
<u>UNIT-V</u>			
10.	a)	Write short note on measure of information and entropy.	04
	b)	Show that the entropy is maximum when all the symbols of a discrete memoryless source are equi-probable.	06
OR			
11.	a)	Derive Hartley-Shannon's Law.	05
	b)	An analog signal is band limited to 4 KHz and is sampled at its Nyquist rate. The samples are quantized into 4 levels. Find the information rate of the source if (i) The probability of occurrence of the inner two levels are three times that of the extreme two levels. (ii) All the levels are equally likely.	05
