VIGNAN'S
Foundation for Science, Technology & Research

Scheme of Valuation – March / April 2024

Course	B.Tech./BBA/BCA/BSc/B.Pharmacy/MBA/MCA/M.Tech/Ph.D				
Regulation	R22	Year	II	Semester	I
Branch / Specialization	DECE		Subject Code		22DEC204/2
Subject Name	Analog and digital communications				
Scheme Prepared by	Dr. / Mr. / Ms.: K. Praveena. Designation: Assist Professor. Department: ECE				
Signature					
Date of Exam	06/04/2024				
Scheme Submission Date	05/04/2024.				

START HERE

① ~~Reducing the bandwidth and power consumption by half~~, Amp ratio of modulated signal & carrier signal

② $P_{sc} = \frac{m^2}{2} P_c$ $P_c = 800W$ $m^2 = 0.82$

③ Bandwidth required to transmit an angle modulated wave is twice the sum of the peak frequency deviation and high mod signal.

④ Bandwidth of 98% of power approximation to $2 \, 75 + 15 = 180 KHz$.

⑤ more resistance noise and fading.

⑥ Process of encoding a digital information signal into the amplitude phase

⑦ Temp, pressure, and Feed gen.

⑧ The transmission of a signal in original, unmodulated form.

⑨ Tx, channel and Rx

⑩ reducing the BW and power consumption of.

⑪ BW required AM signal $2f_m$.

⑫ $f_m(t) = f_c + K A_m$

$AM = [A_c + A_m \cos 2\pi f_m t] \cos(2\pi f_c t)$

⑬ The deviation of the total angle from the carrier angle is defined phase deviation.

The instantaneous frequency deviation from the carrier frequency is known as frequency deviation.

$S(t) = 100 \cos(2\pi f_c t + t \int -k \, m(\tau) \, d\tau)$

(14) $2\pi f_c = 8 \times 10^8$

$f_c = 95.54$ MHz

$2\pi f_m = 1250$

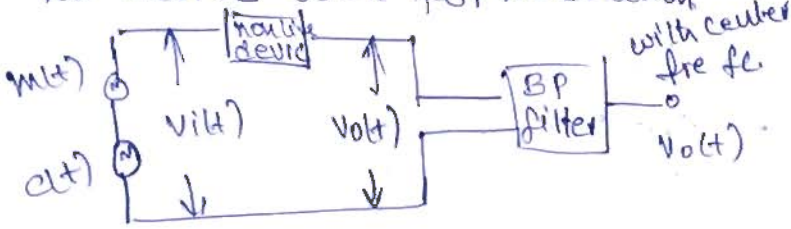
$f_m = 199$ Hz

$\Delta f = \beta \times f_m = 5 \times 199$

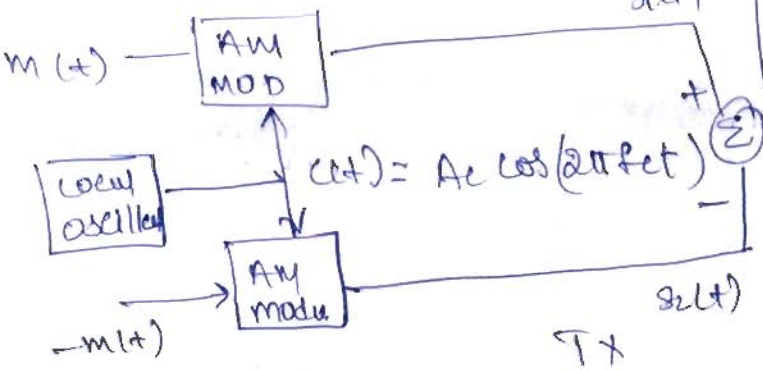
$\Delta f = 995$ Hz

(15) Square law modulator

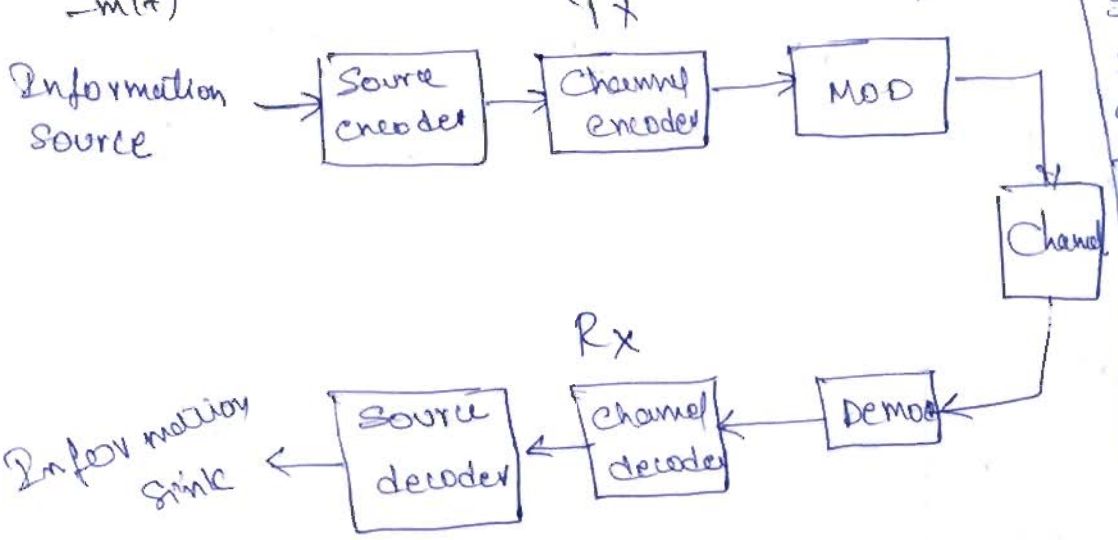
I/p output relation of the device used for modulation



(16) uses two identical AM generator along with an adder.

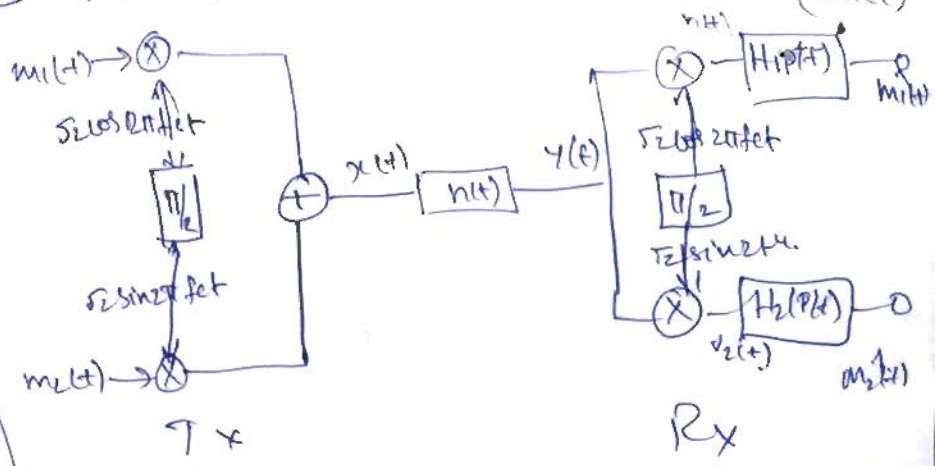


(17) Information Source



(18)

(19) $QAM(t) = m_1(t)\sqrt{2}\cos 2\pi f_c t + m(t)\sqrt{2}\sin(2\pi f_c t)$



(20) → PAM gives better Signal to noise ratio.

→ PWM synchronize between Transmitting and receiving fails where PPM doesnot

→ PCM using ones and zeros

→ PPM is analogue with its the length of time the signal is on.

(21) TDM Transmitting and receiving independent Signals over a common Signal path by means of Synchronized switches at each end of the transmission line so that each signal appears on the line only a fraction of time in alternating pattern.

(22) Need for modem.

Modem is a device that connects home, usually through a coaxial cable Connection Internet Service provider. without modem would not able to access the internet or send files b/w device.

(22) Comparision TDM and FDM.

Time devision multiplexing	Frequency devision multiplexing
→ works with digital signal as well as analog signal	→ only analog
→ low complict	→ high Conflict
→ efficient	→ inefficient
→ Syn pulse nessesary	→ Guard band neccesary.

(23) ASK

According to difference signals it adjust to difference signal. it adjust amp of the sinewave.

FSK

digital signal to adjust the frequency of wave carrier.

ASK
Binary 0 is one amplitude and binary 1 is another amp.

In FSK Binary 0 is one carrier frequency and binary one is another frequency.

(24) Types of noise

Internal noise (physical noise)

External noise (psychological noise)

Semantic noise

Technical noise

Culture noise

Nois figure:
figure of merit

Noise Figure (dB)
= NF(dB) = 10log (F).

$$SNR = \frac{P_{signal}}{P_{noise}} \qquad SNR = \frac{S^2}{E(N^2)}$$