Exposiment-2. flim? To study Pulse Code Modulation (PCM) and Study Probability Erros using Mottablactane. Software Used: Motlab/Octave. Theory - Rulse Cocle Modulation is the Places in which the message signal is sampled to the amplitude of each sample is rounded off the measurest one of the finite set of allowable val. The basic elements of a RM system are as. reson Eugrap low rass samples fluntizer Eniades + applied Source of to channel. message agnal The essential operation in the transmitter of a RM system are sampling, quantization & encoding device recoder teronstruction -> Retiration Visionted Amplila RIMULLINE | Equalizer Regenerativé Circuit The most important part of Amastern lies in the ability
to control the effects of distortion & naise produced by transmitting arm bowy of channel. The essential operation in the receiver le regenerative of impaired signal, decoding & demodulation of the train of quantizer samples. These operation are usually performed in the same wecuit which is a digital to analog convertor DAC). Parallel to | Channel Sampang - Quantizer - Envoder Serial Converto Serial to Parallel Convot Analog Cow Signal Pass Rair Case Becode Signal Estimator.

Transmission of Bandwitch,

$$l=2^{n}$$
; 'n' mo: of Euravy bits

 $fs \ge 2fm$
 gw needed in Pam is -1/2 of Signalling bate.

 $gw = \frac{1}{2} nfs$
 $gw = nfm$

$$\frac{S}{Nq} = \frac{12 PS}{\frac{m_{Ox} - m_{mun}}{2}}$$

Case 1:
$$m(\xi)$$
 is a simusoid $P_S = \frac{A^2m}{2}$
 $m_{max} = m_{min} = A_m$. $P_S = \frac{A^2m}{2}$

$$\frac{S}{Nq} = \frac{12Am^2}{2} \times \frac{2^{2n}}{Am - (Am)^2} = \frac{3}{2} 2^{2n}$$

$$\frac{S}{N_0}$$
) $\frac{3}{2}$ = 6.02n + 18 dB