

School of Electrical Electronics and Communication Engineering

Electronics and Communication Engineering

ETE - Jun 2023

Time : 3 Hours

Marks : 100

Sem IV - G2UA402T - Analog and Digital Communication

Your answer should be specific to the question asked

Draw neat labeled diagrams wherever necessary

1. State Sampling theorem and Nyquist criterion. Determine the Nyquist sample rate for a signal $m(t)=10 \sin 100\pi t$. K2 CO1 (5)
2. Derive the relationship between instantaneous frequency and frequency deviation in frequency modulation and phase modulation. K1 CO1 (5)
3. A carrier wave of frequency 10 MHz and amplitude 8V is amplitude modulated by 5- kHz sine wave of amplitude 4V. Calculate (i) modulation factor (ii) amplitude of sideband components (iii) Total power transmitted . K2 CO1 (5)
4. Brief the concept of time division multiplexing with its applications. K3 CO2 (10)
5. How noise affects digital communication system? and also define quantization noise in digital communication system. K3 CO3 (10)
6. Explain block diagram of PCM system and how noise effects PCM system? K2 CO2 (10)
7. Enlist advantages of time division multiplexing over frequency division multiplexing and also gives application of TDM. K4 CO2 (10)

OR

- Dicuss demodulation process in amplitude modulation system. How can you demodulate a DSB- SC signal? K4 CO4 (10)
8. Discuss phase modulation and also derive the expression for phase deviation and bandwidth for phase modulation .. K5 CO4 (15)
 9. Explain pulse modulation system and Compare PAM, PWM, PPM. K4 CO3 (15)
 10. Illustrate concept of delta modulations with block diagram and also discuss the limitations of it. K5 CO3 (15)

OR

- What is Quantization error in pcm? Obtain an expression of signal to quantization noise ratio for pulse code modulation. K5 CO3 (15)