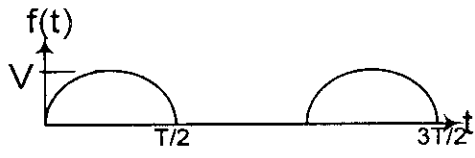
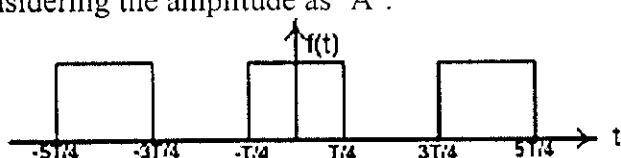


Subject: PRINCIPLES OF COMMUNICATION ENGINEERING

Time: 3 hours

Full Marks: 100

Answer Any Five Questions. All Questions carry equal marks.

Q. No.		Marks
1.	(a) Draw a block diagram of a typical digital communication system and discuss the various blocks involved. (b) What are the various types of communication channels?	20
2.	(a) Calculate the coefficients considered in the expression of the Fourier Series for even or odd function. (c) Find an expression for the half-wave rectified output shown below. 	20
3.	(a) A digital signal has a bit rate of 2000 bps. What is the duration of each bit (bit interval)? (b) Explain the various line coding schemes available. What is the usefulness of such design schemes? (c) Draw the waveforms considering the various line coding schemes taking the code (1 1 0 1 0 1 0 1 1 0 1)	20
4.	(a) Deduce the exponential form of Fourier Series. (b) What are the Dirichlet's conditions in framing a Fourier Series function. (c) Find the Fourier Series expansion of the periodic rectangular waveform shown below considering the amplitude as 'A': 	20
5.	(a) Explain Channel Capacity and hence state Shannon's Theorem. (b) Comment on the nature and characteristics of the channel. (c) Based on Shannon's definition explain entropy. (d) Calculate the Entropy (in bits) considering a sequence (1 3 1 3 5 5 1 3 5 5 5 5 5 1 3 5 5 5 5 5)	20
6.	(a) What do you mean by the term Noise in a communication system? (b) Present a simple view to model Thermal noise. (c) Compare the various traditional analog modulation schemes.	20

Subject: PRINCIPLES OF COMMUNICATION ENGINEERING**Time: 3 hours****Full Marks: 100****Answer Any Five Questions. All Questions carry equal marks.**

7.	(b) Define the Sampling Rate. (b) Explain the various types of Sampling techniques available. (c) Explain the basic elements of a PCM system?	20
8.	Write short notes on the following topics:- (a) Phase Locked Loop in Communication System (b) Unit Impulse & Unit Step function and the relation between them (c) Compare the various ON-OFF Keying techniques (d) Causal, Anti-causal and Non-causal systems	20
9.	a) Explain a PAM TDM system with a block diagrammatic representation. (b) What are the various transmission impairments encountered in a TDM system?	20
10.	(a) What are the various Pulse Modulation Techniques available? (b) What do we mean by Quantization Noise and Quantization Errors in Pulse Code Modulation? (c) How can the errors be controlled? (d) What are the key factors for considering Delta Modulation for the purpose of Modulation?	20