3 Hours Max. Marks -- 80

Instructions to candidates

1) Q.No. 1 is compulsory.
2) Solve any 3 questions from the remaining 5 questions.
3) Figures on the right side indicate full marks.
4) Make suitable assumptions where required.

			Marks
Q.No 1		**Answer any four.**	
	a)	What is the significance of AWGN channel ?	05
	b)	Explain Hoffman coding in brief.	05
	c)	Differentiate between FSK and PSK.	05
	d)	Derive the expression for entropy.When is the entropy maximum ?	05
	e)	Explain Correlation receiver .	05
.No 2	**a)**	Draw and explain the block diagram of a digital communication system in detail.	10
	b)	State and explain Shannon's theorem. The four symbols produced by a discrete memoryless source has probability 0.5, 0.25, 0.125, and 0.125 respectively. Determine the entropy of the source.	10
Q.No 3	**a)**	Find the probability of error of matched filter. comment on your results	10
	b)	With reference to 8-PSK explain the following: (i) transmitter and receiver with a neat block diagram along with mathematical expression for transmitted signal (ii) sketch its PSD indicating the bandwidth (iii) draw its constellation diagram and find its Euclidian distance	10
Q.No.4	**a)**	Compare BASK, BFSK & BPSK based on following parameters:- bandwidth requirement, noise immunity, transmission rate, efficiency & applications.	10
	b)	What is ISI ? How is it caused? Discuss the remedies to overcome ISI. state the Nyquist's Condition for zero ISI.	10
Q.No.5	**a)**	Why line coding is used ? Draw the various line code formats and state their important properties.	10
	b)	A (7 ,4) cyclic code is generated using the polynomial x3+ x + I i) Generate the systematic cyclic code for the data I 100. ii) Draw the encoder & show how parity bits are generated for the data I I 00.	10
Q.No.6		**Write short notes on**	
	a)	Powerline carrier communication	05
	b)	Optical fiber communication	05
	c)	Satellite communication.	05
	d)	Linear Transversal Equalizer	05
