Duration: 3hrs **[Max Marks:80]**

N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

1		Attempt any **FOUR**	**[20]**
	a	Explain the necessity of de-emphasis and pre-emphasis	
	b	Compare AM and FM.	
	c	What is aliasing? How it can be avoided?	
	d	A transmitter radiates 9kW of power with carrier unmodulated and 10.125 kW when modulated. Calculate the depth of modulation.	
	e	List the advantages of pulse modulation over continuous modulation schemes.	
2	a	Explain indirect FM transmitter.	**[10]**
	b	Draw a neat block diagram of a superheterodyne radio receiver and explain each block in detail.	**[10]**
3	a	What are the different methods for SSB generation? Explain any one in detail.	**[10]**
	b	Explain the balanced slope detector with the help of a schematic diagram.	**[10]**
4	a	State and prove sampling theorem for low pass bandlimited signal.	**[10]**
	b	With the help of suitable waveforms explain the generation and detection of PPM	**[10]**
5	a	Draw and explain the FDM transmitter & receiver block diagram along with its applications.	**[10]**
	b	With the help of a block diagram explain the concept of PCM.	**[10]**
6	a	Explain in detail the balanced modulator with suitable expressions and waveforms.	**[10]**
	b	i) Write a note on Delta and adaptive delta modulation ii) Explain VSB in broadcast television.	**[10]**

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