JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

B.Tech-IV Semester (ECE/CSE/IT)

COURSE CODE (CREDITS): 18B11EC413 (4)

MAX. MARKS: 15

COURSE NAME: Modern Analog and Digital Communication

COURSE INSTRUCTORS: Dr. Alok Kumar

MAX. TIME: 1 Hour

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required

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Explain the different Question		- N.	
rum the different types of communication media with		CO	Mar
How does the	s. 🗍		2
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significance. Define entropy in the control of a source? Explain	1 its	CO 1	
	γ Δ	CO-1	3
0.2, and 0.1, respectively Calculate 41 with probabilities 0.4	0.3		}
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15 kHz with a carrier of 200 1 15 kHz with a carrier of 200 1 15 kHz with a carrier of 200 1 15 kHz			
the transmitted signal	and (CO-2	4
b) Calculate the pore and	of	- 1	
signal with the signal with th	- 1	- }	
modulation in three modulating frequencies and the multitone A	$M \mid$	- 1	
c) What are it	a	1	
practical major challenges of implements	- 1		
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and carrier signal. Show the world	e Co	12/2	
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50 W. Calculate the modulation and the message signal power:	a	- 1	
In a DSB-SC system, a massive efficiency.	s	- 1	l
modulate a carrier Find of signal with 10 W power is used		1	j
modulation index is 1 the total transmitted nower is it		1	
What is Gaussian poisson		}	1
Wild is the kerning	ļ	_	- 1
Gaussian poise? Will reference between Gaussian poise	CO-	1 3	
How is the near what does "white" mean in the contact.	}	}	1
power spectral density (DCD) and the context of noise?	1	1	- 1
Characteries to		1	J
	Explain the different types of communication media with example. How does entropy relate to the uncertainty of a source? Explain significance. Define entropy in the context of information theory of the source emits four symbols {A, B, C, D} with probabilities 0.4, 0.2, and 0.1, respectively. Calculate the entropy of the source. a) If a multitone AM system transmits signals at 5 kHz, 10 kHz, at 15 kHz with a carrier at 200 kHz, sketch the frequency spectrum the transmitted signal. b) Calculate the percentage of power in sidebands for a multitone AM signal with three modulating frequencies, each having modulation index of 0.6. c) What are the major challenges of implementing multitone AM practical communication systems? Derived the expression for DSB-SC signal by considering message and carrier signal. Show the waveform of DSB-SC signal is total transmitted power of 200 W, and the message signal power is 50 W. Calculate the modulation efficiency. In a DSB-SC system, a message signal with 10 W power is used to modulation index is 1. What is Carrier. Find the total transmitted power if the	Explain the different types of communication media with examples. How does entropy relate to the uncertainty of a source? Explain its significance. Define entropy in the context of information theory. A 0.2, and 0.1, respectively. Calculate the entropy of the source. 15 kHz with a carrier at 200 kHz, sketch the frequency spectrum of the transmitted signal. b) Calculate the percentage of power in sidebands for a multitone AM signal with three modulating frequencies, each having a modulation index of 0.6 c) What are the major challenges of implementing multitone AM in practical communication systems? 1) Derived the expression for DSB-SC signal by considering message and carrier signal. Show the waveform of DSB-SC signal is frequency domain using Fourier transform. A DSB-SC signal has a 50 W. Calculate the modulation efficiency. In a DSB-SC system, a message signal with 10 W power is used to modulation index is 1. What is Gaussian noise? What is the key difference between Gaussian poise and the carriers are a signal power of Gaussian poise?	Explain the different types of communication media with examples. How does entropy relate to the uncertainty of a source? Explain its significance. Define entropy in the context of information theory. A 0.2, and 0.1, respectively. Calculate the entropy of the source. a) If a multitone AM system transmits signals at 5 kHz, 10 kHz, and 15 kHz with a carrier at 200 kHz, sketch the frequency spectrum of the transmitted signal. b) Calculate the percentage of power in sidebands for a multitone AM signal with three modulating frequencies, each having a modulation index of 0.6. c) What are the major challenges of implementing multitone AM in practical communication systems? Derived the expression for DSB-SC signal by considering message and carrier signal. Show the waveform of DSB-SC signal is total transmitted power of 200 W, and the message signal power is total transmitted power of 200 W, and the message signal power is 100 W. Calculate the modulation efficiency. In a DSB-SC system, a message signal with 10 W power is used to modulate a carrier. Find the total transmitted power if the modulation index is 1. What is Gaussian noise? What is the key difference between Gaussian noise are least to CO-1 3 Gaussian noise?