

BRAINWARE UNIVERSITY

Term End Examination 2023 Programme - BCA-2018 Course Name - Communication Systems Course Code - BCA203A (Semester II)

Time: 3:0 Hours Full Marks: 70

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) Choose the correct alternative from the following:

1 x 15=15

(i)		s103t)cos106t. Compute the resultant
	modulation index?	11.00
	a) 0.4	b) 0.3
	c) 0.13	d) 0.14
(ii)	Demodulation of PAM signal is done with	
(,		b) HPF
	a) LPF	d) Schmitt Trigger
	c) BPF	channels in the AM broadcast band?
(iii)	What is the assigned bandwidth of each of the	
	a) 5 kHz	b) 10 kHz
	c) 15 kHz	d) 200 kHz
(iv)	Coherent detection of binary ASK signal require	es:
	a) Phase synchronization	b) Timing synchronization
	c) Amplitude synchronization	d) None of the above
(v)	The main factor that determines the accuracy	
	a) Signal bandwidth	b) Pulse repetition rate
	c) Pulse amplitude	d) Number of bits used for quantization
4.41	Calculate power in each sideband, if power of carrier wave is 176W and there is 60%	
(VI)	modulation in amplitude-modulated signal?	
	a) 13.36W	b) 52W
	c) 67W	d) 15.84W

c) 67W

Kolkala, Wasi Bengal-700125		
(vii) In a communications system, noise is most lil	kely to affect the signal	
a) at the transmitter		
	d) at the destination	
c) in the information source (viii) Which of the following is not a part of analog	ue communication	
a) PPM	b) AM d) PWM	
c) PCM	a) PVVIVI	
(ix) Thermal noise is independent of	b) temperature	
a) Bandwidth	d) Boltzmann constant	
c) center frequency (x) Thermal noise power is proportional to	THE PROPERTY OF THE PROPERTY O	
a) B	b) 1/(B^2)	
c) B^2	d) None of these	
(xi) Quantization noise occurs in		
a) time division multiplexing	b) frequency division multiplexing	
c) pulse code modulation	d) pulse frequency modulation	
(xii) In the VSB system-		
a) picture and sound carrier are transmitted	b) only sound carrier is transmitted	
c) only picture carrier is transmitted	d) none of these	
(xiii) Define total transmitted power of AM	4.4.	
a) Pc + Ps	b) Pc + m d) Pc+ m2	
c) m + Ps(xiv) Medium which sends information from source		
	b) Transducer	
a) Transmitterc) Loudspeaker	d) Channel	
(xv) What are the three steps in generating PCM in	50 C C C C C C C C C C C C C C C C C C C	
a) sampling, quantizing & encoding	b) encoding, sampling & quantizing	
c) sampling, encoding & quantizing	d) quantizing, sampling & encoding	
Gra	un B	
	up-B Type Questions)	3 x 5=15
(enert mave	,,,,,	
2. Compare FM wave with PM wave.		(3)
3. Write short note on thermal noise		(3)
4. State Sampling theorem. Explain aliasing effect and		(3)
5. Differentiate between PAM, PWM and PPM signals		(3)
In FM signal, a carrier signal is frequency modulate in a maximum frequency deviation of 5 KHz. Find tl		g (3)
O		
In FM signal, a carrier signal is frequency modulate	d with a sinusoidal signal of 6 KHz resulting	(3)
in a maximum frequency deviation of 15 KHz. Find	the band width and modulation factor.	
Grou	ın-C	
(Long Answer Ty		5 x 8=40
	•	
7. A certain transmitter radiates 10 KW with unmodu	lated carrier and 12 KW when the carrier i	s (5)
sinusoidally modulated. Calculate the modulation to 50% modulation is transmitted simultaneously.	index. If another sine wave corresponding	
to 50% modulation is transmitted simultaneously, of the below of block diagrams explain the transmitted simultaneously.	etermine the total radiated power.	(5)

7.

8.

modulation.

398, Ramkrishnapur Road, Baras (5)

9.	What do you mean by quantization and quantization error in communication system?	(5)
10.	Explain how you can calculate noise figure in terms of signal to noise ratio for amplifier.	(5)
11.	For a sinusoidal signal Acoswt, find the condition for no slope overload, if step size is & sampling period is Ts.	(5)
12.	A modulated voltage is represented by the expression V = 15 [1 + 0.75 cos ($2\pi \times 10^{\circ}$ 3t)] sin	(5)
	$(2\pi \times 10^{7}t)$ volt Find i) Depth of modulation ii) Angular frequency of carrier signal iii) Period of message signal iv) Peak instantaneous value of voltage of modulated wave. An FM transmitter sends out a 200 MHz carrier wave frequency modulated by 30 KHz sinusoidal audio signal, The maximum frequency deviation is 50 KHz. Find the modulation	(5)
	· index and bandwidth.	(5)
14.	. Compare and contrast PCM, DM and ADM.	(5)
	OR	(E)
	Present comparative study of BASK, BPSK and BFSK signals.	(5)