Total number of printed pages:3 **D/3rd/DECE301**

2024

SUBJECT NAME: Principles of Electronic Communication

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1.	a)	For a A.C signal if time period is 10us find out the frequency of the same signal in mega hertz unit.		2
	b)	For a 1khz A.C signal find out the time period in millisecond		2
	c)	2sin2πft is a …….. A.C signal		1
	d)	For 2sin2πt signal peak amplitude is ……volt And frquency is ……hz		2
	e)	Peak to peak voltate of 2sin2πt signal is ……		1
	f)	Plot the following signals in a single x-y axis		2x3=6
		i)	a) Sinwt b) -Sinwt	
		ii)	a)1khz sin signal b) 2khz sin sinal	
		iii)	a)sinwt b)2sinwt	
	g)	Define the following		2x3=6
		i)	a) modulation b) amplitude modulation c) frequency modulation	
2.	a)	For a A.C signal if time period is 1us find out the frequency of the same signal in mega hertz unit.		2
	b)	For a 10khz A.C signal find out the time period in millisecond		2
	c)	1sin2πft is a …….. A.C signal		1
	d)	For sin2π50t signal peak amplitude is ……volt And frquency is ……hz		2
	e)	Peak to peak voltate of sin2πt signal is ……		1
	f)	Plot the following signals in a single x-y axis		2x3=6

		i)	a) Sinwt b) Sin(wt+180°)	
		ii)	a)1khz cos signal b) 0.5khz cos sinal	
		iii)	a) coswt b) 2coswt	
	g)	Derive amplitude modulated signal to plot spectrum of AM wave		6
3.	a)	For a A.C signal if time period is 1ms find out the frequency of the same signal in kilo hertz unit.		2
	b)	For a 10Mhz A.C signal find out the time period in microsecond		2
	c)	$3\sin 2\pi ft$ is a ..... A.C signal		1
	d)	Draw the circuit diagram of a balanced modulator and explain it's function		4+6=10
	c)	For a AM signal if modulation index is 0.5 , carrier power is 1 watt find out total power required to transmit the AM signal		3
	d)	Vm=1V Vc=2V find out modulation index		2
4.	a)	Plot the following		2X2 = 4
		i)	AM signal	
		ii)	FM signal	
	b)	Derive the total power realation of a AM signal as a function of modulation index ,carrier power		6
	c)	Write down the advantages of modulation		4
	d)	Compare AM and FM		6
5.	a)	What are the main advantages of DSB transmission		2
	b)	Draw the block diagram of a receiver and explain each block function		2+3=5
	c)	Draw the block diagram of a trasmitter and explain each block function		2+4=6
	d)	For a FM signal maximum frequency deviation is 1khz and modulating frequency is 100hz find out modulation index		3
	e)	Plot sinwt and coswt on single x-y axis		2
	f)	Write down advantages of SSB trasmission		2
6.	a)	Draw the block diagram of phase shift method of SSB generation and explain		4+6 =10
	b)	Define the following		2x3=6
		i)	Modulation index of AM	
		ii)	Modulation index of FM	
		iii)	Phase modulation	

	c)	Plot coswt and cos(wt+90°) on single x-y axis	2
	d)	For a FM signal maximum frequency deviation is 10khz and modulating frequency is 100hz find out modulation index	2
7.	Describe in detail		10x2=20
	a)	FM generation	
	b)	AM generation	