Total number of printed pages:2 **Programme(D)/5th Semester/DIE511**

2022

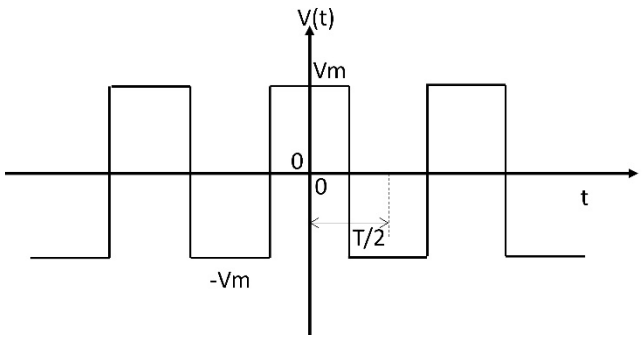
TELEMETRY

Full Marks : 100

Time : Three hours

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

*Answer **any five** questions.*

1.	a)	Discuss the operation of the Telemetry system with the help of block diagram.	5
	b)	Explain the mechanical type and pneumatic type telemetry system with suitable example.	5+5 = 10
	c)	Briefly explain different classification methods of Telemetry principles.	5
2.	a)	Explain a voltage telemetry scheme for level measurement and convert the scheme to current telemetry system with suitable sketches.	10
	b)	Why frequency telemetry is considered superior to voltage or current telemetry? How can the analogue signal be converted into frequency for transmission?	2+2 = 4
	c)	Discuss the Synchro transmitter-receiver system for position telemetry.	6
3.	a)	Write a short note on the following.	5×2 = 10
		i) Pulse generator	
		ii) Odd and even symmetry of signals	
	b)	Find out the trigonometric Fourier series for the given waveform, where symbols represent their usual meanings. 	6

	c)	Sketch the unipolar rectangular pulse with its mathematical representation.	4
4.	a)	What are the different kinds of analogue modulation techniques used for signal transmission? Describe the process of amplitude modulation in detail.	2+8=10
	b)	What is modulation index? A 100 W carrier is modulated to a depth of 80%, calculate the power of the modulated wave.	2+2=4
	c)	The antenna current of an amplitude modulated transmitter modulated to a depth of 50% by a sine wave is 10 A. It increases to 11 A when it is simultaneously modulated by another sine wave. Calculate the depth of modulation due to the second sine wave.	6
5.	a)	Sketch a complete frequency telemetry scheme including the details in the transmitting and receiving sides.	10
	b)	Write the principle of FM wave modulation. How the bandwidth (BW) is related with channel capacity (C)? Explain with brief analysis and example.	5 + 5 = 10
6.	Write short notes on any two of the following (any four)		5×4=20
	a)	BCD source coding	
	b)	ASCII source coding	
	c)	IRIG Standards	
	d)	Modems	
	e)	TT and C subsystem for satellite communication	
7.	a)	Describe the scheme of the transmitting and receiving of FDM system.	5+5=10
	b)	Write the differences between FDM and TDM system.	5
	c)	Discuss the scheme of an optical fibre based communication system.	5