No. of Printed pages: 2

[57]

Sardar Patel University

B.Sc. (semester-III) Examination

.-2022

Paper Code: US03CELC22

Paper Title: Analog Communication

Date: 16/6/202; Saturday

Time: §2:00 pm to 2:00 pm

Maximum Marks: 70

Q-1		Multiple Choice Questions.		(10)
	1.	caused by lighting discharge in thunderstorm and other electrical		
		disturbances occurs in the atmosphere.		
		a) Atmospheric noise	b) Solar noise	
		c) cosmic noise	d) industrial noise	
	2.	The high frequency range extends from	·	
		a) 300-3000 MHz	b) 3-30 MHz	
		c) 3-300 KHz	d) 3000-30000 MHz	
	3.	Amplitude modulating voltage signal be gi	ven by the expression	
		a) $v_m = 2\pi V_c Cos\omega_m t$	b) $v_m = V_m Cos\omega_m t$	
		c) vc= V _c Cosω _c t	d) $vc = 2V_c Cos\omega_c t$	
•	4.	Linear diode modulation uses	·	
		a) Non-linear region of dynamic voltage-	b) linear portion of the dynamic	
		current characteristics	characteristics of diode	
		c) Resistive property	d) Inductive property	
	5.	In collector modulation which type of amp	lifier is used?	
		a) Class AB	b) class C	
		c) Class B	d) Class A	
	6.	Inductive reactance tube using RC network	behaves as a inductance of value	
		a) CR	b) gmCR	
		c) CR/gm	d) 1/gm	
	7:			
		a) inductance	b) Current	
		c) voltage	d) reactance	
	8.	The radiation pattern of the thin linear antenna in plane normal to it is		
		a) circular	b) eliptical	
		c) spherical	d) 8 figure	
	9.	The is that part of the radio wave w	which travels transmitting antenna to the	
		receiving antenna through the space.		
		a) Surface wave	b) space wave	
		c) Sky wave	d) none	
	10.		nna can be expressed as	
		a) $R=P/I^2_{rms}$	b) R=PI ² rms	
			d) R=I ²	
		c) $R=I^2_{rms}/p$	/	

	1.	The highest modulation frequency typically used in FM broadcast is (5 KHz / 15 KHz)		
	2.	Very low frequency range extends from (10-30 KHz / 3-30 MHz)		
	3:	The function of the is to extract the original modulating voltage from the frequency modulated voltage. (FM detector / AM detector)		
	4.	Germanium diode operates in condition. (Reverse bias / Forward bias)		
	5. 6.	In Capacitor, the empty space between the plates is filled with a non-conductive material or electric insulator or dielectric region. (True / False) The Linear diode detector uses the rectification property of Diode. (True / False)		
	7.	Long distance radio communication is possible through the sky wave propagation. (True / False)		
	8.	The Surface wave is that part of the radio wave which travels along the surface of earth. (True / False)		
Q-3		Answer in short. (Any Ten)		
	1.	Explain definition of modulation with equation of carrier voltage.		
	2.	Explain frequency modulation.		
	3.	Explain the cosmic noise.		
	4.	Differentiate Resistance, Reactance and Impedance.		
	5.	What are the advantages of Collector modulation over base modulation?		
	6.	Give the classification of frequency modulation.		
	7.	Give the types of FM detector.		
	8.	Draw the basic circuit of Reactance FET.		
	9.	Draw the circuit diagram of Frequency modulator using varactor diode.		
	10.	Explain the basic function of the Antenna.		
	11.	Explain propagation of EM waves.		
	12.	The magnitude of space wave and surface wave both are affected by which factor?		
Q-4		Answer the following question (Any Four)	(32)	
	1.	Explain block diagram of superhetrodyne broadcast receiver in detail.		
	2.	Define Amplitude modulation. Derive the expression for the amplitude modulated voltage with necessary diagram.		
	3.	Describe the working of Linear diode detector with proper circuit diagram.		
	4.	Draw the circuit diagram of square law diode modulation and explain in detail.		
	5.	Explain Reactance FET method with necessary diagram and derive an expression for effective capacitive Ce.		
	6.	Explain slope detector with necessary diagram.		
	7.	Write a short note on: sky wave propagation.		
	8	Explain function and process of antenna action with necessary diagrams.		

Do as Directed. (Fill in the blanks and True/False)

Q-2

(08)