1708E283

Candidate's Seat No :_____

B.Sc. Sem-5 Examination

CC 304

Electronics

Time : 2-00 Hours] **August 2021** **[Max. Marks : 50**

Instructions: All Questions in **SECTION – I** carry equal marks
Attempt any **THREE** questions in **SECTION – I**
Question IX in **SECTION – II** is **COMPULSORY**

ELE-304 (Electronics Communications)

SECTION - I

Q. 1		
A)	Why we need modulation? Derive the equation $m = \frac{E_{max}-E_{min}}{E_{max}+E_{min}}$ for Amplitude Modulation	07
B)	Derive the necessary equations for frequency spectrum and bandwidth of amplitude modulation	07
Q. 2		
A)	Explain AM power distribution? Prove the Total power $P_{Total} = 1.5\ Pc$	07
B)	A sinusoidal carrier voltage of frequency 1000KHz and amplitude 80 volts is amplitude modulated by an audio signal frequency 4KHz producing 50% modulation. Calculate the frequency of upper side band , lower side band and amplitude of each side band.	04
C)	A communication transmitter radiates a 500W amplitude modulated signal . if carrier power is 350W . Calculate the modulation index	03
Q. 3		
A)	Explain Sinusoidal frequency modulation with necessary mathematical derivation	09
B)	Explain frequency spectrum analysis with necessary graph	05
Q. 4		
A)	Define : Phase modulation and explain in detail	07
B)	Explain equivalence between PM and FM. with figure	07
Q. 5		
A)	Explain the basic principles of an antenna with necessary figure	07
B)	Explain following parameters of an antenna (1)Antenna pattern (2) polarization	04
C)	Explain directivity of resonant half wave dipole in brief	03
Q. 6		
A)	Explain folded dipole and parasitic element with figure.	07
B)	Discuss the working of Yagi antenna and simple vertical aerials in brief	07
Q-7		
A)	Write brief notes on (1)Satellite system (2) Fixed satellite services	07
B)	Explain INSAT (Indian Domestics Satellite) in detail	07
Q-8		
A)	Explain satellite telecommunication earth station with its block diagram in detail	10
B)	Explain television in brief	04

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	SECTION-II	
Q-9	Attempt any **EIGHT**	08
A)	Amplitude Modulation is the changing the _____of the carrier signal with respect to the instantaneous change in message signal	
B)	In AM , the modulated carrier has new signals at different frequencies, called _____or _____	
C)	A 1KW Carrier is modulated to a depth 70%. Calculate the total power	
D)	The most common Amplitude demodulator circuit in use is _____	
E)	Define : Frequency modulation	
F)	What do you mean by frequency deviation constant?	
G)	Which mathematical function used for analyzed the Frequency spectrum for sinusoidal FM?	
H)	1.Δf=75 kHz *fm*= 0.1 kHz then BFM= _____	
I)	Radiation of _____waves from an antenna is the complex process	
J)	Define : Radiation resistance of an antenna	
K)	What do you mean by Beam width of an antenna?	
L)	What is the function of ferrite rod antenna?	
M)	Satellite system divided into two distinct parts _____segment and _____segment	
N)	INTELSAT V has _____feed antenna	
O)	What are the main advantages of satellite communication system?	
P)	In the space craft , primary source of the electric power is usually provided by conversion of _____energy to _____power	