

## B.Sc. Sem.-5 Examination

CC-304

Electronics

March-2025

[Max. Marks : 70]

Time : 2-30 Hours]

Instructions : : (1) Figures to the right indicate marks (2) Symbols have their usual meaning		Total marks:70
Q. I		
A)	Explain the theory of AM and derive the equation $m = \frac{E_m}{E_c}$ for amplitude modulation	07
B)	Explain how diode working as detector	07
OR		
Q-I		
A)	Derive the equation for AM power distribution $P_{Total} = 1.5 P_c$	07
B)	<b>Calculate following examples</b> (1) 1KW Carrier is modulated to a depth 60%. Calculate the total power and the sideband power of the modulated wave (2) Communication transmitter radiates a 500W amplitude modulated signal. If carrier power is 350W. Calculate the modulation index.	07
Q.II		
A)	Define Frequency modulation and also compare AM and FM	07
B)	Write the notes on frequency spectrum for sinusoidal FM	07
OR		
Q.II		
A)	Explain general mathematical theory of PM	07
B)	Discuss equivalence between PM and FM with suitable figure.	07
Q. III		
A)	Explain basic antenna principles in detail with necessary figure	07
B)	Discuss following terms of antenna in detail (1) Directive gain (2) Radiation efficiency	07
OR		
Q-III		
A)	Explain (1) Yagi antenna (2) Antenna pattern	07
B)	Discuss following terms of antenna in detail (1) Input impedance (2) Radiation resistance	07
Q.IV		
A)	Write short note on satellite systems	07
B)	Write short note on INSAT	07
OR		
Q.IV		
A)	Draw satellite earth station block diagram and explain any two block in detail	07
B)	Write notes on television	07

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Q-V	Attempt any seven out of twelve	14
(A)	.What is modulation index in Amplitude modulation	
(B)	Write the equation for effective voltage gain and current in AM	
(C)	What is diagonal peak clipping?	
(D)	Define "frequency deviation constant in FM?	
(E)	.What do you mean by demodulation?	
(F)	Which modulation covers under angle modulation	
(G)	What is transmitting antenna?	
(H)	Define beam width of an antenna	
(I)	What do you mean by half wave dipole?	
(J)	Full form of INTELSAT is _____	
(K)	What is geo stationary orbit?	
(L)	What is photo voltaic effect?	