

- Instructions:**
- 1) All questions are compulsory.
 - 2) Figures in rounded() brackets within the question, indicate the scheme of marking for respective part of the question, whereas, figures in the first right column indicate total marks for that whole question.
 - 3) CO is the index number of the Course Outcome statement.
 - 4) The Bloom's taxonomy level (BL) for 1,2,3,4,5 and 6 is remember, understand, apply, analyze, evaluate and create respectively.
 - 5) Assume suitable data if necessary.
 - 6) Use of non-programmable calculators is allowed

Attempt the Following

			Marks	BT Level	COs
Q.1	A	Explain analog communication systems with the help of a block diagram. (Block Diagram-2 Marks, Explanation-5 Marks)	7	2	CO1
	B	Derive the expression for the modulation index of the amplitude-modulated wave (Derivation- 6 Marks)	6	3	CO2
		OR			
	B	A modulating signal $m(t)=20\cos(2\pi\times 10^3t)$ is amplitude modulated with a carrier signal $c(t)=40\cos(2\pi\times 10^5t)$. Find the modulation index, the carrier power, and the power required for transmitting the AM wave. (Assume $R=1$) (Modulation Index-2 Marks, Carrier Power-2 Marks, Total Power-2 Marks)	6	3	CO2
Q.2	A	Derive the expression for the modulated wave, bandwidth, and power of the SSBSC wave. (Modulated wave- 2 Marks, Bandwidth- 2 Marks, Power- 2 Marks)	6	3	CO4
	B	Explain the Suppression of the Carrier using a Balanced Ring Modulator. (Diagram-2 Marks, Explanation-4 Marks)	6	2	CO3
		OR			
	B	Explain the different forms of amplitude modulation in detail. (Each type-2 Marks X 3 =6 Marks)	6	2	CO3

