



	InSem Examination-II Summer 2024		
	Exam Seat No.:		
	Academic Year: 2023-2024	Semester: IV	
	Name of Programme: S.Y B.Tech(Electronics & Telecommunication)	Pattern: 2022	
	Name of Course: Communication Engineering	Course Code: ETC222012	
	Max. Marks: 30	Duration: 1 Hr	

	<p>Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.</p> <ol style="list-style-type: none">1. This question paper contains 02 pages.2. Answer to each new question is to be started on a new page.3. Assume suitable data wherever required, but justify it.4. Draw the neat labelled diagrams, wherever necessary.5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.	
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Question No. 1 Attempt following Question

- a) The equation of an angle modulated voltage is $e = 10 \sin(10^8 t + 3 \sin 10^4 t)$. Calculate carrier and modulating frequencies, the modulation index, frequency deviation and power dissipated in 100Ω resistor. (7) CO1

OR

- b) A 400W carrier is amplitude modulated to a depth of 100%. Calculate the total power in case of AM and DSBSC technique. How much is the power saving (in W) is achieved for DSBSC? If the depth of modulation is changed to 75% then how much power (in W) is required for transmitting the DSBSC wave? Compare the power required for DSB-SC in both the case and comment on reason for change in the power levels (7) CO1

- c) Describe Armstrong method for FM generation. (8) CO1

OR

- d) Explain any one method of SSB generation. State its advantages and disadvantages (8) CO1

Question No. 2 Attempt following Question

- a) An AM super heterodyne receiver has IF of 455KHz, RF of 600KHz and local oscillator Frequency of 1055KHz. Determine the image frequency and IFRR for a preselector Q of 100 (7) CO2

OR

- b) A receiver using high side injection has an RF carrier of 27MHz and an IF center frequency of 455KHz. Determine the local oscillator frequency, image frequency, IFRR for a preselector Q of 100 and preselector required to achieve the same IFRR as that achieved for an carrier of 600KHz. (7) CO2

- c) Define the following with neat characteristics: (i) Selectivity (ii) Fidelity (iii) Sensitivity. (8) CO2

OR

- d) How we recover the FM signal using PLL? (8) CO2

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