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**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_\_

**End Semester Examination – Nov/Dec - 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **12EC213** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **COMMUNICATION THEORY** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | **Marks** |
| **PART-A(10X1=10 MARKS)** | | |
| 1. | Mention the use of SSB-SC. | (1) |
| 2. | Portray the relation between total power and carrier power for an Amplitude modulated system. | (1) |
| 3. | A 10 KHz audio tone is used to modulate a 100 MHz carrier causing a frequency deviation of 50 KHz. Determine the modulation index. | (1) |
| 4. | Emod(t) = 10 sin (6x108t+6 sin 1200t). Find the modulation index and the carrier frequency. | (1) |
| 5. | The acronym for ISB is \_\_\_\_\_\_\_\_\_ . | (1) |
| 6. | Mention any two characteristics of receivers. | (1) |
| 7. | State the purpose of using Pre-emphasis. | (1) |
| 8. | What is your perception about Noise limiter. | (1) |
| 9. | A Noise with constant power spectral density is termed as \_\_\_\_\_\_\_\_\_ noise | (1) |
| 10. | Define: Signal to Noise ratio. | (1) |

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| **PART B(5 X 3= 15 MARKS)** | | |
| 11. | A transmitter supplies an unmodulated carrier power 8KW to the antenna. Determine the total power radiated when modulated to 30%. | (3) |
| 12. | Differentiate Narrow band FM and Wideband FM. | (3) |
| 13. | State the disadvantages of Tuned Radio frequency receiver. | (3) |
| 14. | Discuss about ‘Automatic Frequency Control’. | (3) |
| 15. | Elucidate on Noise Figure. | (3) |

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| **PART C(5 X 15= 75 MARKS)** | | | | |
| 16. | a. | Define and Derive the expression for Amplitude modulation andit’s Power calculation with necessary waveforms. | | (12) |
| b. | Discuss: Need for modulation. | | (3) |
| (OR) | | | | |
| 17. | a. | State the need for suppression of carriers. | | (3) |
| b. | Explain in detail about Square law detector with neat diagram**.** | | (12) |
| 18. | a. | Define and Derive the mathematical expression for FM signal and draw the frequency spectrum of FM Wave. | | (12) |
| b. | Armstrong method: Discuss. | | (3) |
| (OR) | | | | |
| 19. | a. | Discuss in detail about the Travis detector with necessary diagrams. | | (10) |
| b. | How is the FM signal generated using direct method? Explain. | | (5) |
| 20. | a. | With a neat block diagram, explain the function of a transmitter system which has only one side band. | | (12) |
| b. | Differentiate High level and Low level transmitter system. | | (3) |
| (OR) | | | | |
| 21. |  | | With neat diagram explain about the superheterodyne receiver. Discuss about the Image frequency rejection. | (15) |
| 22. |  | | With a neat block diagram, explain the functioning of FM transmitter system. | (15) |
| (OR) | | | | |
| 23. | a. | With a neat block diagram, explain the functioning of FM stereo system. | | (10) |
| b. | Give a short note on De-Emphasis. | | (5) |
| 24. |  | | Derive the expression for signal to noise power ratio for SSB-SC system. | (15) |
| (OR) | | | | |
| 25. |  | | Explain in detail about the various types of Noise. | (15) |

ALL THE BEST