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



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **14EC2013** | **Duration :** | **3hrs** |
| **Sub. Name :** | **COMMUNICATION THEORY AND SYSTEMS** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Explain in detail the working of communication system with a neat block diagram. | CO1 | 15 |
| b. | Summarize on the need for modulation.. | CO1 | 5 |
| **(OR)** | | | | |
| 2. |  | Derive the expression for Amplitude modulation and its power calculation with necessary waveforms. | CO2 | 20 |
|  |  |  |  |  |
| 3. | a. | Derive the expression for Balanced modulator with necessary diagrams. | CO2 | 10 |
| b. | Explain the operation of Ring modulator in terms of different conditions. | CO2 | 10 |
| **(OR)** | | | | |
| 4. |  | Derive the expression for envelope detector with relevant diagrams. | CO2 | 20 |
|  |  |  |  |  |
| 5. | a. | Derive the expression for frequency modulated wave with neat sketch. | CO2 | 10 |
| b. | An FM wave is represented by the voltage equation  Emod =10 Sin(8X106 t +6 Sin 3X104 t)  Calculate; i) Modulating frequency ii) Carrier frequency  iii) Modulation indexiv) Frequency deviation v) carrier amplitude | CO2 | 10 |
| **(OR)** | | | | |
| 6. | a. | Explain the generation of FM by Armstrong method. | CO2 | 10 |
| b. | Describe the principle and operation of Balanced slope detector. | CO2 | 10 |
|  |  |  |  |  |
| 7. |  | Explain the block diagram of ISB transmitter with its applications. | CO1 | 20 |
| **(OR)** | | | | |
| 8. |  | Elaborate the principle and working of superheterodyne receiver with the neat sketch. | CO1 | 20 |
|  | | **Compulsory**: |  |  |
| 9. |  | Derive the SNR calculations for DSB-SC signal. | CO3 | 20 |