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

G:\logo and QP Template\logo 3 Feb 2018 final.tif

**End Semester Examination – Nov/Dec – 2018**

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

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Summarize on the various types of modulation. | CO1 | 5 |
| b. | Explain in detail about the working of communication system with a neat block diagram. | CO1 | 15 |
| (OR) | | | | |
| 2. | a. | Derive the expression for Amplitude modulation and its power calculation with necessary waveforms. | CO2 | 15 |
| b. | Compare low level and high level modulation. | CO2 | 5 |
|  |  |  |  |  |
| 3. | a. | Derive the power calculations for DSB-SC & SSB-SC signals | CO2 | 12 |
| b. | Explain the operation of square law diode modulator. | CO2 | 8 |
| (OR) | | | | |
| 4. |  | Derive the expression for synchronous detector with DSB-SC & SSB-SC as inputs. | CO2 | 20 |
|  |  |  |  |  |
| 5. | a. | Derive the expression for frequency modulated wave with neat sketch. | CO2 | 12 |
| b. | A 107.6 MHz carrier signal is frequency modulated by a 7 KHz sine wave. The resultant FM signal has a frequency deviation of 50 KHz. Determine the following:   1. Carrier swing of FM signal 2. The highest and lowest frequencies attained by the modulated signal 3. The Modulation index of FM wave. | CO2 | 8 |
| (OR) | | | | |
| 6. |  | Explain the principle and the operation of ratio detector with neat sketch. | CO2 | 20 |
|  |  |  |  |  |
| 7. |  | Describe in detail about the SSB transmitter with its applications. | CO1 | 20 |
| (OR) | | | | |
| 8. |  | Explain the principle and working of super heterodyne receiver with a neat sketch. | CO1 | 20 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. |  | Derive the SNR calculations for SSB-SC signal. | CO3 | 20 |