Reg.No. \_\_\_\_\_\_­­\_\_\_\_\_\_

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

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| **Code :** | **17EI2028** | **Duration :** | **3hrs** |
| **Sub. Name:** | **SCADA SYSTEMS DESIGN** | **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. | List the elements of a SCADA system and explain in detail. | CO1 | 12 |
| b. | Elaborate on the hardware and software used for SCADA systems. | CO1 | 8 |
| (OR) | | | | |
| 2. | a. | Elaborate on the evolution of SCADA system. | CO1 | 14 |
| b. | Appraise the application of SCADA in various fields. | CO2 | 6 |
|  |  |  |  |  |
| 3. |  | What is RTU? Sketch the block diagram of RTU hardware and explain in detail. | CO3 | 20 |
| (OR) | | | | |
| 4. | a. | Discuss about the various communication architecture applicable for SCADA systems. | CO2 | 10 |
| b. | Explain the communication standard RS 485 with required diagrams. | CO1 | 10 |
|  |  |  |  |  |
| 5. |  | Draw the architecture of modern SCADA systems and explain the same with the components involved. | CO3 | 20 |
| (OR) | | | | |
| 6. | a. | Explain the architecture of open system communication for SCADA. | CO4 | 12 |
| b. | Appreciate how operator instructions to the SCADA system can be organized and elaborate on the various media that are available to present information. | CO5 | 8 |
|  |  |  |  |  |
| 7. | a. | Explicit the different types of cables used in SCADA and Explain each of them. | CO5 | 15 |
| b. | Write briefly about the Sensors used for SCADA. | CO5 | 5 |
| (OR) | | | | |
| 8. | a. | With required diagrams and elaborate on the wireless technologies used in SCADA. | CO6 | 12 |
| b. | Illustrate the error correction techniques used in SCADA communications. | CO6 | 8 |
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|  | | **Compulsory**: |  |  |
| 9. |  | Give a case study on usage of SCADA in power systems. | CO2 | 20 |