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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

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

**End Semester Examination – Nov/Dec– 2017**

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|  |  |  |  |
| **Code :** | **14EE2036** | **Duration :** | **3hrs** |
| **Sub. Name :** | **SMART GRID** | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Classify various communication channels used in smart grid communication. | CO2 | 10 |
| b. | List down the characteristics of Smart Grid. | CO2 | 10 |
| (OR) | | | | |
| 2. | a. | Illustrate about various Smart Grid Communication Technologies and their benefits and drawbacks. | CO2 | 10 |
| b. | Outline the benefits of Smart Grid. | CO2 | 10 |
|  |  |  |  |  |
| 3. | a. | Categorize the types of digitally signing messages. | CO1 | 10 |
|  | b. | Elaborate on the authentication based on shared secret key and key distribution centre. | CO1 | 10 |
| (OR) | | | | |
| 4. | a. | Illustrate the various types of encryption with suitable examples. | CO2 | 10 |
|  | b. | Mention the cyber security measures imposed by standards IEEE 1686 and IEC 62351. | CO2 | 10 |
|  |  |  |  |  |
| 5. | a. | Explain the architecture of a smart meter with a neat block diagram. | CO1 | 10 |
|  | b. | Highlight the benefits of electronic meters. | CO1 | 10 |
| (OR) | | | | |
| 6. | a. | Figure out communications infrastructure and protocols for smart metering. | CO2 | 10 |
|  | b. | Validate the role of Distribution Management Systems (DMS) in a smart grid. | CO2 | 10 |
|  |  |  |  |  |
| 7. | a. | Interpret the attributes of Supervisory Control And Data Acquisition. | CO3 | 10 |
|  | b. | Project the importance of Wide-Area Measurement System. | CO3 | 10 |
| (OR) | | | | |
| 8. | a. | Categorize the energy meters and discuss the evolution of electricity metering. | CO1 | 10 |
|  | b. | Schematically show and describe the differences between conventional metering and smart metering. | CO1 | 10 |
|  | |  |  |  |  |
|  | | **Compulsory**: |  |  |  |
| 9. | a. | Compare various energy storage technologies. | CO3 | 10 |
|  | b. | Forecast the future of smart grid in integration of renewable energy distributed generation. | CO3 | 10 |

ALL THE BEST