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



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

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| **Code :** | **18EE3002** | **Duration :** | **3hrs** |
| **Sub. Name :** | **PHOTOVOLTAIC SYSTEMS** | **Max. marks :** | **100** |

**ANSWER ANY FIVE QUESTIONS (5 x 16 = 80 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | How a solar cell works. | CO1 | 2 |
| b. | Describe the behaviour of solar cell under the effect of light. | CO1 | 4 |
| c. | Explain the hot-spot heating. | CO1 | 10 |
|  |  |  |  |  |
| 2. | a. | List the semiconductor materials used for the solar cell manufacturing. | CO2 | 2 |
| b. | Write the procedure for standalone system design for powering a microwave. | CO2 | 4 |
| c. | Explain solar water pumping. | CO2 | 10 |
|  |  |  |  |  |
| 3. | a. | Define Hybrid solar PV system. | CO3 | 2 |
| b. | Draw the structure of standalone photovoltaic system. | CO3 | 4 |
| c. | Explain the design issues for central power stations. | CO3 | 10 |
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| 4. | a. | Define Net Power Meter. | CO4 | 2 |
| b. | Explain in short about charge controllers used in solar systems. | CO4 | 4 |
| c. | Explain about batteries used in solar system in detail. | CO4 | 10 |
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| 5. | a. | What is the use of inverter in solar systems. | CO5 | 2 |
| b. | Describe standalone inverter. | CO5 | 4 |
| c. | Explain Inverter Topologies for Single-phase Grid-Connected Photovoltaic Systems. | CO5 | 10 |
|  |  |  |  |  |
| 6. | a. | Define air Mass. | CO1 | 2 |
| b. | Describe the behaviour of solar cell under the effect of Temperature. | CO1 | 4 |
| c. | Explain solar PVlantern. | CO2 | 10 |
|  |  |  |  |  |
| 7. | a. | What is array arcing? | CO1 | 2 |
| b. | Draw the structure of Hybrid solar systems. | CO3 | 4 |
| c. | Explain about the type of inverters in detail. | CO4 | 10 |
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| **COMPULSORY QUESTION (1 x 20 = 20 Marks)** | | | | |
| 8. | a. | Draw the structure of grid-connected home with an integral photovoltaic system. | CO6 | 4 |
| b. | With neat sketch explain about solar cars. | CO6 | 8 |
| c. | Describe about space solar power satellites. | CO6 | 8 |