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| CLASS: | M.TECH/PRE-PHD | SEMESTER : II/NA |
| BRANCH: | EEE | SESSION : SP/19 |

**SUBJECT: EE567 SMART GRID TECHNOLOGY**

TIME:     3.00  HOURS                                                              FULL MARKS: 50

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
*4*. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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| Q.1(a) | Distinguish the components to be present in the grid characteristic for considering the grid a smart grid. Interpret technical challenges to implement the smart grid concept. | [5] |
| Q.1(b) | As per IEEE standard 1547-2018, explain different frequency zones where frequency ride through is necessary. Estimate change in power with a particular droop used for solar photovoltaic system. | [5] |
| Q.2(a) | Estimate the size of inductor and capacitor for buck converter. | [5] |
| Q.2(b) | With a block diagram, point out control technology involved in grid tide SPV system. | [5] |
| Q.3(a) | With an example, explain the communication process of information received by appropriate receiver following communication protocol TCP/IP. | [5] |
| Q.3(b) | Differentiate two communication protocols TCP and UDP. Which one will be better for sending PMU data to data concentrator and why? | [5] |
| Q.4(a) | Write in brief the definition and working principle of all demand response programs. | [5] |
| Q.4(b) | Point out the differences between the components of smart meter and conventional meter. How does a smart meter help to meet the objective of smart grid? | [5] |
| Q.5(a) | Demonstrate the rules for optimal placement of phasor measurement units. | [5] |
| Q.5(b) | Evaluate the phasor updating process using non-recursive DFT algorithm. Explain with an example. | [5] |

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