

M. Tech. Electrical Power System (CBCS Pattern) Semester-III
PEPS31 - Self Study Course

P. Pages : 1

Time : Three Hours



GUG/S/25/11065

Max. Marks : 70

-
- Notes :
1. All questions carry equal marks.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.
 5. Use of slide rule, Logarithmic tables, Steam tables, Mollier's chart, Drawing instruments, Thermodynamic tables for moist air, Psychrometric charts and Refrigeration charts is permitted.
 6. Use of non-programmable calculator is permitted.

- | | | | |
|----|----|--|---|
| 1. | a) | Explain the present scenario for the Indian smart grid and what the key challenges are? | 7 |
| | b) | Give the comparison between conventional grid & smart grid. | 7 |
| 2. | a) | What are the key challenges for smart grid? | 7 |
| | b) | Discuss the overview of the hardware used in smart meters. | 7 |
| 3. | a) | Discuss the configuration of smart sub-station with block diagram | 7 |
| | b) | Explain the outage management system in smart grid. | 7 |
| 4. | a) | Describe power quality Issues of grid connected Renewable energy Sources | 7 |
| | b) | What are the environmental impact and climate change due to renewable energy technologies? | 7 |
| 5. | a) | Explain the concept of microgrids and discuss the need and application of microgrids? | 7 |
| | b) | Comment on "International Economical Issues about Smart grid" | 7 |
| 6. | a) | Explain the concept of power quality and EMC in smart grid | 7 |
| | b) | Explain reactive power control in smart grid. | 7 |
| 7. | a) | Discuss GIS and google mapping tools in smart grid. | 7 |
| | b) | Explain Load Frequency control (LFC) in microgrid systems. | 7 |
| 8. | a) | What is 'Interoperability'? What are its benefits and challenges? | 7 |
| | b) | Why cyber security is of prime importance in smart grid & how it can be achieved. | 7 |
