

**Duration: Three Hours**

**Total Marks: 80**

Note:

1. Question No. 1 is compulsory
2. Solve any three questions out of remaining five questions
3. Figure on right indicates full marks

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|----|----|--|----|
| Q1 | a. | What is Wide Area Network (WAN)?                       | 5  |
|    | b. | Explain in short the automated meter reading (AMR)     | 5  |
|    | c. | What do you meant by self healing grid?                | 5  |
|    | d. | Explain briefly Wide Area Measurement System (WAMS)    | 5  |
| Q2 | a. | What is the need of smart grid?                        | 10 |
|    | b. | What are the opportunities and barriers of smart grid? | 10 |
| Q3 | a. | Elaborate on Plug in Electric Hybrid Vehicles          | 10 |
|    | b. | Write a note on smart appliances                       | 10 |
| Q4 | a. | Write a note on Geographic Information System (GIS)    | 10 |
|    | b. | Write a note on Phasor Measurement Unit (PMU)          | 10 |
| Q5 | a. | Elaborate on the concept of microgrid                  | 10 |
|    | b. | Write a note on Distributed Energy Resources (DER)     | 10 |
| Q6 | a. | Explain GPS and Wi-Fi communication technologies       | 10 |
|    | b. | Explain Wi-Max based communication technology          | 10 |