

No. of Printed Pages : 4  
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## 6th Sem / Electrical

### Subject : Smart Grid and Distributed Generation System

Time : 3 Hrs.

M.M. : 60

#### SECTION-A

**Note:** Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Which technology helps in managing Distributed Generation resources effectively ? (CO1)

- a) PLC
- b) Micro grid
- c) Diesel generators
- d) Circuit breakers

Q.2 What is the key challenge of integrating Distributed Generation into the grid ? (CO4)

- a) Lack of power generation
- b) Power quality and stability issues
- c) Increased energy wastage
- d) Higher fossil fuel usage

Q.3 Which energy source is commonly used in Distributed generation ? (CO3)

- a) Coal
- b) Hydropower
- c) Solar and wind
- d) Nuclear power

Q.4 What is Distributed Generation (DG)? (CO3)

- a) Centralized power production
- b) Generation of electricity near the point of use
- c) Power generation by fossil fuel only
- d) Only grid-based power production

Q.5 Which of the following is a key feature of a Smart Grid ? (CO2)

- a) One-way power flow
- b) Self-healing capability
- c) Manual fault detection
- d) Fixed electricity pricing

Q.6 Which communication technology is commonly used in Smart Grids ? (CO2)

- a) Bluetooth
- b) Zigbee
- c) Fiber Optics
- d) Infrared

#### SECTION-B

**Note:** Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 A Smart Grid uses \_\_\_ communication to enable two-way data exchange . (CO2)

(1)

220965B

(2)

220965B

Q.8 The main advantage of Smart Grid over a traditional grid is its ability to \_\_\_\_ and \_\_\_\_ itself (CO1)

Q.9 The integration of renewable energy sources like \_\_\_\_ and \_\_\_\_ improves the sustainability of Smart Grid. (CO1)

Q.10 \_\_\_\_ meters allow real-time monitoring of electricity consumption in Smart Grids. (CO4)

Q.11 Smart Grids only support fossil fuel-based power plants. T/F (CO2)

Q.12 Distributed Generation increases reliance on centralized power stations. T/F. (CO3)

### SECTION-C

**Note:** Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Discuss the concept of a Smart grid. (CO1)

Q.14 What are the advantages of Smart grid. (CO1)

Q.15 Discuss about the components of Smart grid Systems. (CO2)

Q.16 Explain the major benefits of implementing a Smart grid system. (CO2)

Q.17 Explain the Communication technology of Smart grid. (CO2)

Q.18 Discuss the main goal of Smart grid. (CO3)

Q.19 What is the concept of Distributed generation. (CO3)

Q.20 Write the challenges of Distributed generation System. (CO3)

Q.21 What is the key function of SCADA in Smart grid. (CO4)

Q.22 Explain the Electrical energy storage systems. (CO4)

### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Compare the Conventional grid and Smart grid Systems in detail. (CO1)

Q.24 Explain the function of Smart meter and its benefits. (CO2)

Q.25 Discuss the Distributed Generation in detail and explain its advantages. (CO4)