

May 2024**M.B.A. (PMS) (Second Semester)
Smart Grid Management (MPM-208)***Time : 3 Hours]**[Maximum Marks : 75*

Note : It is compulsory to answer all the questions (1.5 marks each) of Part A in short. Answer any *four* questions from Part B in detail. Different sub-parts of a question are to be attempted adjacent to each other.

Part A

1. (a) What is the significance of grid automation in a smart grid system ? 1.5
- (b) What are the benefits of Electric Vehicles (EVs) in terms of Sustainability ? 1.5
- (c) Define a smart meter and its primary function. 1.5
- (d) Explain the objectives of the Revamped Distribution System Scheme. 1.5
- (e) Define distribution network automation. 1.5

- (f) What are the main types of renewable energy technologies ? **1.5**
- (g) Name two IEEE standards related to AMI and smart metering. **1.5**
- (h) What is consumer indexing in the context of utility management ? **1.5**
- (i) Define GPS and its role in utility management. **1.5**
- (j) Define Meter Data Acquisition System (MDMS). **1.5**

Part B

- 2. (a) Describe essential components of Smart Grid in detail along with the role and functionality of each component. **10**
- (b) Discuss the role and functions of the ISGF in promoting smart grid initiatives in India. **5**
- 3. (a) Discuss the role of micro grids in facilitating the integration of renewable energy sources. **5**
- (b) Explain how FACTS technologies contribute to enhancing grid stability and power quality. **10**

- 4. (a) Explain the concept of Advanced Metering Infrastructure (AMI) and its significance in modern grid management. **10**
- (b) Discuss the role of EMS and SCADA systems in real-time monitoring, control, and optimization of power grid operations. **5**
- 5. (a) Discuss the environmental benefits associated with renewable energy technologies. **5**
- (b) Define GIS mapping and its importance in utility infrastructure management. **10**
- 6. (a) Discuss the main causes of AT&C losses in distribution networks. **10**
- (b) Discuss the key features and capabilities of an outage management system. **5**
- 7. (a) Discuss the key components of effective consumer care programs and customer service initiatives. **5**
- (b) Discuss the objectives and benefits of demand response and demand-side management programs. **10**