



R20 Regulation
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)
B.Tech V Semester Regular Examinations, January 2023

Subject code:305GA

SMART GRID TECHNOLOGIES
(OPEN ELECTIVE)
(CSE(AI & ML))

Maximum Marks: 70

Date:23.01.2023 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 Define Smart Grid.
- 2 Discuss the Disadvantages of Existing Electric Grid.
- 3 Comparison of Conventional Metering Vs. Smart Metering
- 4 list out the applications of Phasor Measurement Unit (PMU) in Smart Grid
- 5 Define micro grid.
- 6 What is the difference between thin film to plastic solar cells?
- 7 List out the Issues of Power Quality Monitoring
- 8 Discuss the causes of the voltage flickers.
- 9 Define Cyber security for smart grid.
- 10 What is the coverage range for zig Bee Technology?

Part-B

Answer All the following questions.

(10MX 5=50Marks)

- 11 A. Write a short note on "need of electricity"? 5M
B. Explain about feeder automation? 5M
- OR
- 12 A. Analyze the Plug in Hybrid Electric Vehicles (PHEV) of Smart Grid in a power system network. 5M
B. Explain the concept of resilient and self-healing grid. 5M
- 13 A. Explain the pumped hydro storage systems. 5M
B. Discuss about wide area measurement systems. 5M
- OR
- 14 A. Write about the Superconducting magnetic energy storage systems. 5M
B. Explain about the geographic information system (GIS). 5M
- 15 A. Write a note on Micro turbine. 5M
B. Describe the power quality issues of grid connected renewable energy sources. 5M

OR

- 16 A. Discuss different issues of micro grid when interconnected. 5M
B. Explain operation of Fuel cells with suitable examples. 5M
- 17 A. Write a note on, Power quality management in smart grid. 5M
B. Describe the concept, power quality conditioners related to smart grid. 5M
- OR
- 18 A. Discuss The importance of Power Quality Audit. 5M
B. Write The Short Notes on Web Based Power Quality Monitoring System. 5M
- 19 A. Explain the importance of Bluetooth in smart grid. 5M
B. Explain the role of HAN in smart grid. 5M
- OR
- 20 A. Why cyber security is the prime importance in the smart grid and how it can achieve. 5M
B. Discuss about the Neighborhood Area Network. 5M