



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: 305BA

SMART GRID TECHNOLOGIES
(Open Elective)
(Electrical and Electronics Engineering)

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 List the smart appliances in the smart grid.
- 2 Mention any two Drawbacks of the Plug in Hybrid Electric Vehicles.
- 3 List of the Main Components Of PMU.
- 4 List out the applications of SMES in Smart Grid
- 5 Compare micro grid and smart grid
- 6 What is the difference between Fuel cell and solar cell?
- 7 How the power quality can be improved in smart grid.
- 8 Write the obligations of the Harmonics Suppression.
- 9 Define cloud computing.
- 10 What is the full form of the GPS .?

Part-B

Answer All the following questions.

(10MX 5=50Marks)

- 11 Discuss the Transmission Automation of smart grid in power system network? 10M
- OR
- 12 Describe an integration of smart appliances in to grid for home and building automation. 10M
- 13 A. Explain the compressed air energy storage systems. 5M
B. Discuss about wide area measurement systems. 5M
- OR
- 14 A. Explain about smart storage batteries. 5M
B. Examine the Need of Intelligent Electronic Devices (IED) in Smart Grid. 5M
- 15 A. Explain about capacitive power plant. 5M
B. Explain variable speed wind generators. 5M
- OR
- 16 Elaborate the different solar cells used in the micro grid with neat diagrams. 10M
- 17 Discuss the Power Quality Problems of Grid connected Renewable Energy Source. 10M

OR

- 18 A. Explain about power quality control technologies. 5M
B. Draw the flow chart of procedure for monitoring power quality and issues of power quality monitoring. 5M
- 19 A. Examine the Broadband over Power line (BPL) in Smart Grid. 5M
B. Analyze the Importance of Cloud Computing in the smart Grid. 5M
- OR
- 20 A. Explain Wi-Max based communication and wireless mesh network. 5M
B. Explain the concept IP based protocols. in smart grid. 5M