R20 Regulation *Subject code: 3O5BA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech V Semester Supplementary Examinations, November 2025

SMART GRID TECHNOLOGIES

(EEE)

Maximum Marks: 70 Date: 14.11.2025 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.
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)		Marks	CO	BTL
1	Write the need of Smart Grid.	2M	1	L1
2	What are the smart appliances used in smart grid?	2M	1	L1
3	Define Geographic Information Systems(GIS).	2M	2	L1
4	What are the application areas of Intelligent Electronic Devices?	2M	2	L1
5	Mention four differences between solar cells and conventional batteries.	2M	3	L1
6	List out the benefits of Plastic & Organic solar cells.	2M	3	L1
7	List out the Power Quality Conditioners.	2M	4	L1
8	Define EMC in Smart Grid.	2M	4	L1
9	Define Cyber Security for Smart Grid.	2M	5	L1
10	What is Advanced Metering Infrastructure (AMI).	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Explain the Concept of Robust & Self-Healing Grid Present development & International policies in Smart Grid.	10M	1	L2
	OR			
12	Explain about Vehicle to Grid, Smart Sensors.	10M	1	L2
13	Explain about Pumped Hydro system in detail.	10M	2	L2
	OR			
14	Explain about Wide Area Measurement System(WAMS).	10M	2	L2
15	Explain about Integration of renewable energy sources.	10M	3	L2
	OR			
16	Explain about Variable speed wind generators with neat diagram.	10M	3	L2
17	What are the Power Quality issues of Grid connected Renewable Energy Sources?	10M	4	L2
	OR			
18	Discuss in detail about Power Quality Audit.	10M	4	L2
19	Difference between Network (NAN), Wide Area Network (WAN), Bluetooth, ZigBee in four points.	10M	5	L2
	OR			
20	Explain Broadband over Power line (BPL) with neat diagram.	10M	5	L2