R20 Regulation *Subject code: 3O5GA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Regular/Supplementary Examinations, February 2024

SMART GRID TECHNOLOGIES

(CSE(AI&ML))

Maximum Marks: 70 Date:27.02.2024 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	CO	Bloom Tx
All the following questions carry equal marks (10X2M=20 Marks)			
1	Define the Smart grid.	CO1	L1
2	What is Sub-station Automation?	CO1	L1
3	Why is PMU important?	CO1	L2
4	Give the use of IED.	CO2	L1
5	What are various operating modes of a microgrid?	CO2	L2
6	Define variable speed wind generators.	CO2	L1
7	What is power quality audit?	CO3	L1
8	Draw the diagram of decoupled current control method for D-STATCOM.	CO3	L2
9	What is real time path rating?	CO4	L1
10	Write the applications of Cloud Computing for Smart Grid.	CO4	L2
	Part-B		
Answer All the following questions. (5X10M=50Marks)			Bloom Tx level
11	Explain the need of Smart Grid in present days. [10]	CO1	L2
	OR		
12	List the smart appliances and describe an integration of smart appliances in to grid for home and building automation. [10]	CO1	L2
13	A. Explain how the reliability of smart grid can be enhanced by integrating intelligent electronic devices (IED) into it. [7] B. Discuss the IED application for monitoring and protection. [3]	CO2	L3
	OR		
14	Explain about broad band over power line with neat diagram. [10]	CO3	L4
15	Present a detailed overview of captive power plants. [10]	CO3	L3
	OR		
16	Give a detailed account of organic solar cells and thin film solar cells. [10]	CO3	L3

17	Evaluate the Power Quality issues of Grid connected Renewable Energy Sources. [10]	CO4	L4
	OR		
18	Describe Power Quality audits for Smart Grid. [10]	CO4	L3
19	Explain in detail about the cyber security for smart grid. [10]	CO4	L3
	OR		
20	Write a short note on : A. Cloud computing (5) B. LAN and WAN (5)	CO4	L2