



R20 Regulation

Subject code: 306BE

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Regular/Supplementary Examinations, July 2024

Renewable Energy Sources

(Open Elective)

(EEE)

Maximum Marks: 70

Date: 01.08.2024 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 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)		CO	Bloom Tx
1	What is a renewable energy grid? Can a grid be 100% renewable?	CO1	I
2	What is wind power coefficient?	CO1	I
3	State the principle involved in generating solar power.	CO1	I
4	List the advantages of fuel cells.	CO1	I
5	On what principle does an induction generator work?	CO3	I
6	Why do we use exciter in generator?	CO3	II
7	Give the applications of ultracapacitors.	CO4	I
8	How do you remove sulfation from lead-acid battery?	CO4	II
9	Mention a few important functions that are included in an interconnection system.	CO2	I
10	What is Islanding in an interconnected power system?	CO2	I

Part-B

Answer All the following questions (5X10M=50Marks)			
11	What is demand side management? How is it carried out? Give a picture of electricity market with and without demand side management. (10)	CO1	III
OR			
12	Explain the principle and working of vertical axis wind turbine with the horizontal axis wind turbine. (10)	CO1	IV
13	Describe in detail about the PV module equivalent circuit and its I-V characteristics. (10)	CO1	III
OR			
14	Write short notes on the following: (a) Hydrogen fuel cell (b) Polymer Electrolyte membrane fuel cell. (5+5)	CO1	II
15	Describe the various losses in an induction generator and obtain an expression for efficiency. (10)	CO3	III

	OR		
16	Explain the magnetizing curves of induction generator. (10)	CO3	IV
17	Discuss the various energy storage parameters which define the performance criteria. (10)	CO4	III
	OR		
18	Describe the Pumped hydroelectric energy storage system and its capabilities with a neat layout. (10)	CO4	III
19	Describe the principle of power injection and give a detailed account of Power Converters for Power Injection into the Grid. (10)	CO2	III
	OR		
20	Write about i) Distribution generation ii) IEEE standard codes of interconnection system (5+5)	CO2	III