



R20 Regulation

Subject code: 306BE

# TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Supplementary Examinations, November 2025

## RENEWABLE ENERGY SOURCES

(EEE)

Maximum Marks: 70

Date: 17.11.2025

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	Define Renewable energy sources.	2M	1	L1
2	Write the speed control used in wind power generation.	2M	1	L1
3	Write about Economical analysis of solar energy.	2M	2	L1
4	Write the proton exchange membrane of Fuel cells.	2M	2	L1
5	List the applications of PV cell.	2M	3	L1
6	Draw the equivalent circuit of the Fuel cell.	2M	3	L1
7	Write the working of the Induction generator.	2M	4	L1
8	Draw the Magnetization curves of induction generator.	2M	4	L1
9	Write about Ultra Capacitors.	2M	5	L1
10	Write about energy storage as an economic source.	2M	5	L1

### Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Explain Renewable source of energy in detail.	10M	1	L2
OR				
12	Analyse the speed control of wind power energy in small power generating systems.	10M	1	L2
13	Draw the equivalent circuit of PV cell and explain its characteristics?	10M	2	L2
OR				
14	Explain the constructional features of the Proton Exchange membrane Fuel cell.	10M	2	L2
15	Explain the steady state operation losses of self excited Induction motor.	10M	3	L2
OR				
16	Draw the equivalent circuit of Fuel cell with model parameters.	10M	3	L2
17	Explain the energy storage systems Compressed air storage system and super conducting magnetic storage system.	10M	4	L2
OR				
18	a) Write short note on Energy storage parameters?	5M	4	L2

	b) Explain the working of Lead Acid battery.	5M		
19	Explain the Instantaneous Active and reactive power control approach in the Integration of Renewable Energy sources.	10M	5	L2
	OR			
20	Explain the principles of Power Injection? What is Islanding of Power.	10M	5	L2