R18 Regulation *Subject code:2E8CA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VIII Semester Supplementary Examinations, May 2026

RENEWABLE ENERGY SOURCES

(ME)

Maximum Marks: 70 Date: 06.05.2026 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	What is solar constant?	2M	1	L1
2	Differentiate terrestrial and extra terrestrial solar radiation.	2M	1	L1
3	What are the advantages of concentrating collectors?	2M	2	L1
4	What do understand by photovoltaic conversion?	2M	2	L1
5	What is Betz limit?	2M	3	L1
6	List out three differences between horizontal and vertical axis wind turbine.	2M	3	L1
7	What is the difference between fissures and fumaroles in geothermal energy?	2M	4	L1
8	What is the principle of OTEC?	2M	4	L1
9	List out the limitations of Carnot cycle.	2M	5	L1
10	Write the principle of fuel cells.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	What are the reasons for variation in solar radiation reaching the earth than received at the onside of the atmosphere?	10M	1	L2
	OR			
12	Explain in brief the need for exploiting renewable energy sources.	10M	1	L2
13	With a neat sketch explain working of solar water heating systems.	10M	2	L2
	OR			
14	Discuss how the concentrating collectors are advantages over flat plate collectors.	10M	2	L2
15	Explain with the schematic diagram the working of anaerobic digestion showing input material and effluents.	10M	3	L2
	OR			
16	Give a brief description on types of wind turbines.	10M	3	L2

17	What is the current status of geothermal energy in India.	10M	4	L2
	OR			
18	Describe the open cycle OTEC power plant and give the status of OTEC plants in India.	10M	4	L2
19	With the help of a diagram explain the operation of closed cycle MHD generating system	10M	5	L2
	OR			
20	Explain the relative performance of fuel cells.	10M	5	L2