



R20 Regulation

Subject code: 308CA

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VIII Semester Regular Examinations, April 2024

RENEWABLE ENERGY SYSTEMS (Common to CE,CSE,CSE(AI&ML) & CSE(DS))

Maximum Marks: 70

Date:27.04.2024 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 are the limitations of renewable energy sources?	1	L1
2	Why hydrogen is considered as a secondary energy source?	1	L1
3	What is the principle of solar photovoltaic?	2	L1
4	What is solar pond?	2	L1
5	What is the condition for maximum output power from a wind turbine?	3	L1
6	What is Betz limit?	3	L1
7	What are the different forms of biomass available as biofuels?	4	L1
8	What is Biomass cogeneration	4	L1
9	What is tidal energy?	5	L1
10	What is geothermal energy?	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)			
11	What are the conventional and non-conventional energy sources? [10]	1	L2
	OR		
12	A. Give brief review of various sources of renewable energy. [5] B. List out the steps involved in the calculation of local solar time and day length and give needed formulae. [5]	1	L2 L3
13	Classify different solar energy storage systems and explain them in brief. [10]	2	L2
	OR		
14	A. With a schematic diagram explain the structure of medium temperature solar power plant. [5] B. Explain the term fill factor and its importance as a performance parameter for a solar cell. [5]	2	L2 L2
15	How energy from wind can be extracted? Explain the process by using suitable diagram. [10]	3	L2
	OR		

16	A. Describe the working of a wind power system and its components with a neat schematic diagram. [5] B. Discuss the various considerations taken into account for site selection of a wind energy system. [5]	3	L2 L2
17	With the help of neat sketch, explain the working of floating drum type biogas plant. [10]	4	L2
	OR		
18	A. What are biomass conversion technologies? Draw a schematic diagram to explain various conversion technologies and products. [5] B. Draw the aerobic digestion of organic waste by three-stage biochemical processing techniques. [5]	4	L2 L2
19	A. Discuss the theory and working principle of ocean thermal energy conversion systems. [5] B. Explain the working of a tidal power plant with a neat sketch. [5]	5	L2 L2
	OR		
20	Explain with neat diagram the working of a geothermal power plant. [10]	5	L2