



R18 Regulation
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code:2E8CA

B.Tech VIII Semester Regular/Supplementary Examinations, April 2023

Renewable Energy Sources

(Mechanical Engineering)

Maximum Marks: 70

Date:05.05.2023 Duration: 3 hours

Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 Mention the important effects of global climate change.
- 2 List the advantages of renewable sources of energy.
- 3 How is a concentrating collector different from a flat plate solar collector?
- 4 Write the significance of Zenith angle.
- 5 Write the wind power equation.
- 6 Define tip speed ratio in wind turbine design.
- 7 What is anaerobic digestion?
- 8 Using biomass as fuel, how much carbon dioxide will be released?
- 9 What are the spring tides?
- 10 List the limitations in hydro power plants.

Part-B

Answer All the following questions.

(5X10M=50Marks)

- 11 Describe the Indian and international energy scenario of conventional and renewable energy sources. [10M]
- OR
- 12 Discuss the necessity of sustainable design and development for proper growth of human life in world. [10M]
- 13 Explain in detail about the construction of solar cell, solar module and solar array. [10M]
- OR
- 14 Explain the principle of various types of Photo Voltaic (PV) systems. [10M]
- 15 With a neat diagram, explain how wind energy can be converted into electrical energy. [10M]
- OR
- 16 (a) State the essential features of a probable site for a wind farm. [5M]
(b) Discuss yaw control and pitch control. [5M]
- 17 Discuss and differentiate the following methods of biogas generation: Pyrolysis and Combustion. [10M]
- OR
- 18 Explain the process of production of Bio diesel. Discuss the advantages and limitations in applicability. [10M]
- 19 Describe the different types of turbines in use for small scale hydroelectric power plants. [10M]
- OR
- 20 (a) Write short notes on the wave energy conversion machines. [5M]
(b) What are the advantages and limitations of wave energy conversion? [5M]