

**CMR ENGINEERING COLLEGE: : HYDERABAD**  
**UGC AUTONOMOUS**  
**IV-B.TECH-I-Semester End Examinations (Supply) - December- 2025**  
**RENEWABLE ENERGY SOURCES**  
**(MECH)**

[Time: 3 Hours]

[Max. Marks: 70]

**Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART-A****(20 Marks)**

1. a) List the types of renewable energy sources. [2M]
- b) Justify renewable energy technologies are more attractive than conventional energy technologies. [2M]
- c) State beam radiation or direct radiation. [2M]
- d) Define Collector efficiency. [2M]
- e) What are the potential sites for tidal energy in India? [2M]
- f) What are the disadvantages of wind power? [2M]
- g) Compare bio mass and bio gas. [2M]
- h) List the some organic materials used in bio-mass plant. [2M]
- i) Write the advantages and disadvantages of OTEC. [2M]
- j) What is geothermal power and write its applications. [2M]

**PART-B****(50 Marks)**

2. Explain the status of non-conventional energy sources in India, and what are their future prospect. [10M]

**OR**

3. Examine the Environmental impact of Renewable energy. [10M]

4. Sketch and explain the working of solar thermal water pump. [10M]

**OR**

5. Explain the sun tracking helps in energy collection by a flat plate solar collector with sketch. [10M]

6. Draw a neat diagram of horizontal shaft wind mill with all required components and explain the function of each component. [10M]

**OR**

7. Explain briefly the environmental impact of wind energy [10M]

8. a. Write short note on Bio mass and biogas. [5M]
- b. Discuss about pyrolysis. [5M]

**OR**

9. Elaborate the factors affecting on Bio digestion. [10M]

10. Discuss briefly the principles of OTEC energy utilization. [10M]

**OR**

11. Describe concepts for converting wave energy into mechanical or electrical energy. [10M]

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