

29/12/2022

Reg. No.

Question Paper Code

11525

B.E./B.Tech. - DEGREE EXAMINATIONS, NOV/DEC 2022

Seventh Semester

Mechanical Engineering

ME8072 - RENEWABLE SOURCES OF ENERGY

(Regulations 2017)

Duration: 3 Hours

Max. Marks: 100

PART-A (10 × 2 = 20 Marks)

Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
|---|-------------------------------|
| 1. List the various energy resources. | 2,K1, CO1 |
| 2. Point out the primary and secondary sources of energy. | 2,K1, CO1 |
| 3. Define collector efficiency. | 2,K2, CO2 |
| 4. What is meant by greenhouse effect? | 2,K2, CO2 |
| 5. How the wind mills are classified? | 2,K2, CO3 |
| 6. Write down the various types of wind power plants. | 2,K2, CO3 |
| 7. List the factors affecting bio gas generation. | 2,K2, CO4 |
| 8. What is meant by energy plantation? | 2,K2, CO4 |
| 9. Write the advantages and disadvantages of OTÉC. | 2,K1, CO5 |
| 10. What are prime movers? | 2,K2, CO5 |

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) Discuss briefly the possibilities of utilizing the following methods of power generation solar & fuel cells. 13, K1, CO1

OR

- b) Briefly discuss the renewable energy scenario in Tamil Nadu. 13, K1, CO1

12. a) Describe in brief, the flat plate and concentrating collectors with neat sketch. 13, K2, CO2

OR

- b) Explain briefly on thermal electric conversion system and solar thermal electric conversion. 13, K2, CO2

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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13. a) Explain in details any two methods of types of wind energy systems. 13, K3, CO3

OR

b) Describe with a neat sketch the working of WECS with main components. 13, K2, CO3

14. a) Explain in details any two methods ethanol production. 13, K2, CO4

OR

b) How are gasifiers classified and list the potential application of gasifiers. 13, K2, CO4

15. a) Explain in brief the principles of OTEC energy utilization. 13, K2, CO5

OR

b) Explain the different methods used for hydrogen storage. Discuss their advantage and disadvantage. 13, K2, CO5

PART - C (1 × 15 = 15 Marks)

16. a) Can we use the temperature difference between the layers of the ocean as a useful form of energy? If yes, explain the process in detail. 15, K3, CO6

OR

b) Discuss the principle of operation of a simple single effect tidal power plant and give a graph of sequential operating modes 15, K3, CO6