No. of Printed Pages : 3

# MRW–004

## MASTER OF SCIENCE (RENEWABLE ENERGY AND ENVIRONMENT) (MSCRWEE)

## Term-End Examination

## December, 2024

### MRW–004 : ENERGY MANAGEMENT

*Time : 3 Hours* *Maximum Marks : 70*

***Note :*** *Attempt any* ***five*** *questions. All questions carry equal marks. Use of Scientific calculator is permitted.*

1. (a) Write down all the costs components of an energy consuming unit. 7

   (b) Explain the principle of evaporative cooling. Discuss the advantages of evaporative coolers over air conditioners. 7

2. (a) Discuss the good housekeeping measures in detail. List any *seven* good house keeping measures. 7

(b) How does thermodynamics differ from mechanics ? Discuss the applications of thermodynamics in different areas. 7

3. (a) Describe the thermodynamic equilibrium and derive the equation of state for adiabatic process. 7

(b) Discuss the second law of thermodynamics. What is entropy transfer ? 7

4. (a) Define the various types of efficiencies, loss of energy and irreversibility. 7

(b) Explain the concept of waste heat recovery. Discuss in detail with a neat sketch. 7

5. (a) Describe any *two* of the following : 7

(i) Waste heat boilers

(ii) Plate heat exchanger

(iii) Thermocouples

(b) Explain how co-generation is advantageous over conventional power plants. 7

6. (a) Discuss the various methods of earthing. 7

(b) Describe the transmission and distribution system. 7

7. Write short notes on any *two* of the following : 7+7

(i) Payback period

(ii) Step up motors

(iii) Energy efficient devices

(iv) Star and delta connection

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