

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

Term-End Examination

December, 2022

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 allowed.

1. (a) Explain the strategies of Energy Management. 7
- (b) What are the shortcomings of 1st Law of Efficiency? 7
2. (a) Discuss different types of energy audits in detail. 7
- (b) What is evaporative cooling? What are the advantages of evaporative cooler as compared to air-conditioner? 7

3. Differentiate between any **four** of the following : $4 \times 3 \frac{1}{2} = 14$

- (a) Path function and Point function
- (b) Renewable and Non-renewable energy sources
- (c) Thermal energy balance and Electrical energy balance
- (d) Star connection and Delta connection
- (e) Capacitance and Inductance

4. State the 1st Law of Thermodynamics. Discuss the salient features of this law. Write the expression of 1st Law for all the thermodynamic processes. 14

5. Explain any **two** of the following : 2 \times 7 = 14

- (a) Dead State
- (b) Thermal Equilibrium
- (c) Exergy

6. Write short notes on any *four* of the following :

$$4 \times 3 \frac{1}{2} = 14$$

- (a) Electronic Ballast
 - (b) Quasi Static Process
 - (c) Waste Heat Recovery
 - (d) Generators
 - (e) Heat Engines
 - (f) Switchgears
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