

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

Term-End Examination

June, 2026

MRW-004 : ENERGY MANAGEMENT

Time : 3 Hours

Maximum Marks : 70

Note : (i) Attempt any **seven** questions.

(ii) All questions carry equal marks.

(iii) Use of scientific calculator is permitted.

(iv) Assume suitable data, if missing any.

1. (a) Differentiate between economic technology and Provident Technology. 5

- (b) What is waste heat recovery ? What are the sources and temperature ranges of waste heat recovery ? 5
2. (a) What is energy management and its audit ? Explain in detail. 5
- (b) What is evaporative cooling ? What choices of evaporative coolers are available ? Are evaporative coolers suitable for all climates ? 5
3. (a) What is the utility of thermodynamics in energy management and what are its applications areas ? 5
- (b) In a non-flow process, there is heat transfer loss of 1055 kJ and internal energy increase of 210 kJ. Determine the work transfer and state whether the process is an expansion or compression. 5
4. Distinguish between the following :
- (a) Intensive and extensive properties. 5
- (b) Point function and path function. 5

5. (a) Describe various components of LT Switchgear. 5
- (b) What are the factors influencing cogeneration choice ? 5
6. (a) Describe the nature, broad sources and concept of waste heat recovery. 5
- (b) Describe the equipments used in a sub-station. 5
7. (a) What are the different types of commercial waste heat recovery devices used in industries ? Discuss them. 5
- (b) What are the three-phase balanced systems ? 5
8. (a) Discuss the advantages and disadvantages of earthing ? 5
- (b) What is the transformer ? Discuss its basic principle and construction features. 5

9. (a) Differentiate between energy consumption and specific energy consumption. 4
- (b) Define the following terms : 6
- (i) Energy efficiencies
 - (ii) Loss of energy
 - (iii) Irreversibility

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