

**MASTER OF SCIENCE
(RENEWABLE ENERGY AND
ENVIRONMENT) (MSCRWEE)
Term-End Examination
June, 2026**

**MRW-005 : SOLAR ENERGY AND
APPLICATIONS**

Time : 3 Hours

Maximum Marks : 70

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

(ii) All questions carry equal marks.

1. (a) State and explain Plank's law and Kirchhoff's law of radiation. 7
- (b) Write the major differences between the monocrystalline and polycrystalline silicon cell ? List the name of various solar silicon cells. 7

2. (a) What are the advantages and disadvantages of Dual-Axis Solar tracking system ? 7
- (b) Elaborate the advantages and disadvantages of concentrating and non-concentrating solar thermal devices. 7
3. (a) How do temperature and solar irradiance impact the Solar PV System performance ? 7
- (b) State and explain the design criteria for the Solar PV rooftop installations. 7
4. (a) What are the key points to be considered during the operation of the solar water pump ? 7
- (b) How do active and passive solar collectors work ? Explain. 7
5. (a) What are the different designs of nonporous type solar air heaters ? What is the important drawback of the nonporous absorber plate ? 7

[3]

- (b) Explain implication of climate on building design and how thermal comfort can be realized for : 7
- (i) Hot and dry region
- (ii) Cold and cloudy region
6. (a) Give five steps which you can follow in order to reduce the effect of greenhouse. 7
- (b) Explain the Green building and discuss rating of green buildings. 7
7. Write short notes on any *four* of the following : $4 \times 3\frac{1}{2} = 14$
- (a) Components of solar drying unit
- (b) Climate Change
- (c) Principles of solar still
- (d) Classification of heat conversion devices
- (e) Solar street lighting system and solar lantern
- (f) Construction of solar module

× × × × ×