No. of Printed Pages : 3

MRW–005

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

Term-End Examination

December, 2024

MRW–005 : SOLAR ENERGY AND APPLICATIONS

Time : 3 Hours *Maximum Marks : 70*

Note : *Attempt any* ***five*** *questions. All questions carry equal marks.*

1. Distinguish between any *four* of the following : 3·5×4=14

   (a) Solstice and Equinox

   (b) Solar time and Standard time

   (c) Bypass diode and Blocking diode

   (d) Rankine cycle and Brayton cycle

   (e) Passive solar green house and Active solar green house

   (f) Ongrid PV system and Offgrid PV system

2. (a) Explain the basic parameters and characteristics of a solar cell.

   (b) Discuss the major losses in a PV array system. 7+7=14

3. (a) Explain flat plate collector with the help of a neat sketch.

   (b) State the salient features of the following inverters in the grid connected solar PV system :

   (i) Central inverter

   (ii) String inverter

   (iii) Microinverter 7+7=14

4. (a) With the help of a block diagram, explain the various components of stand alone solar PV system.

   (b) Explain the installation and commissioning of solar water pumping in detail. 7+7=14

5. (a) Discuss the importance of ventilation in heating and cooling of buildings.

   (b) Discuss the building integrated Solar PV Technology in detail. 7+7=14

6. (a) Explain the principle of solar still and discuss the methods of increasing distillate output.

   (b) State the *four* important differences in solar PV and conventional grid electricity.

7+7=14

7. (a) What is green house effect ? Discuss any *five* steps which could be followed to reduce the effect of green house.

   (b) Describe the working and application of a solar cabinet dryer. 7+7=14

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

3.5×4=14

   (a) Community solar cooker

   (b) Evacuated tube collector

   (c) Solar lantern

   (d) Solar powered traffic signal systems

   (e) Power Generation of Parabolic trough collector

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