

# CBCS SCHEME

15EE832

USN

--	--	--	--	--	--	--	--	--	--

**Eighth Semester B.E. Degree Examination, July/August 2021**

## **Operation and Maintenance of Solar Electric Systems**

Time: 3 hrs.

Max. Marks: 80

**Note: Answer any FIVE full questions.**

- 1 a. Explain the effect of Earth's atmosphere on Solar radiation with neat diagram. (08 Marks)  
b. Explain the Geometry for installing solar arrays. (08 Marks)
- 2 a. Explain performance of photovoltaic cell with neat graphical representation. (07 Marks)  
b. Explain any three Emerging technology  
i) Dye sensitized solar cells  
ii) Silver cells  
iii) III – V semiconductor  
iv) Solar concentrators (09 Marks)
- 3 a. Explain the main stream Inverter technologies  
i) String Inverter (04 Marks)  
ii) Multi string inverter (04 Marks)  
b. Explain about the system monitoring  
i) Net metering (04 Marks)  
ii) Gross metering (04 Marks)
- 4 a. Explain in detail with neat diagram  
i) Roof mounting system (04 Marks)  
ii) Pitched roof for metal roof (04 Marks)  
b. List types of sun tracking mechanism. With neat diagram explain sun tracking mechanism. Give its disadvantages. (08 Marks)
- 5 a. Define Solar pathfinder. Explain the working principle of solar pathfinder with neat diagram. (08 Marks)  
b. Explain the following steps taken in selecting area suitable for PV installation and explain protrait and landscape installation. (08 Marks)
- 6 a. Explain in detail why system protection is required. Explain over current and fault current protection. (08 Marks)  
b. Explain the losses in utility interactive PV system. (08 Marks)
- 7 a. Explain utility grid inter connection with neat diagram. (07 Marks)  
b. Explain in detail about  
i) PV combiner box  
ii) System Earthing  
iii) Inverter Installation (09 Marks)

CMRIT LIBRARY  
BANGALORE - 560 037

- 8 a. Explain the points to be ensure by installer for system testing. (08 Marks)  
b. Write about Troubleshooting done in  
i) Identifying problem  
ii) PV system arrays  
iii) Inverter  
iv) Under performing system (08 Marks)
- 9 a. Explain about main cost associated with PV system. (08 Marks)  
b. Explain why marketing knowledge is required for PV installer and gives barrier. (08 Marks)
- 10 a. Write short notes on :  
i) Rebates (04 Marks)  
ii) Renewable portfolio standard (04 Marks)  
b. Explain importance of valuing PV system. (08 Marks)

CMRIT LIBRARY  
BANGALORE - 560 037

\*\*\*\*\*