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220954A

**5th Sem. / Electrical
Subject : Solar Panel Installation & Maintenance**

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. (6x1=6)

- Q.1 A photovoltaic cell works on the principle of (CO1)
a) Conversion of energy b) Photovoltaic effect
c) Both of them d) None of them
- Q.2 Which is not a type of tracking system (CO2)
a) Active system b) Passive system
c) Hybrid system d) Open loop system
- Q.3 The conversion efficiency of a solar PV system refers to: (CO1)
a) Power consumed by the system
b) Power output from sunlight
c) The efficiency of converting sunlight to electricity
d) Efficiency of solar panel cleaning
- Q.4 The tool used to evaluate a site for shading issue is called. (CO3)
a) Pyranometer b) Angle finder
c) Solar path finder d) Clamp meter

- Q.5 Which of the following is a component of the Balance of Systems in PV installations? (CO2)
a) Combiner box b) Charge controller
c) Grounding system d) All of the above
- Q.6 The solar panels may be cleaned at least. _____ time in a year (CO5)
a) 2 b) 3
c) 4 d) 5

Section-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

- Q.7 Define PV Module. (CO1)
- Q.8 Expand MPPT. (CO2)
- Q.9 Define Net Meter. (CO5)
- Q.10 Define Tilt angle. (CO2)
- Q.11 Solar tracking systems are used to _____. (CO3)
- Q.12 A clamp meter is a tool used to measure _____. (CO4)

Section-C

Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)

- Q.13 Write the factors that must be kept in mind while selecting a site for PV system. (CO1)
- Q.14 Write four functions of a solar charge controller. (CO2)
- Q.15 Write notes on I-V characteristics of a PV cell. (CO1)

- Q.16 Write four differences between On-grid and Off-grid solar PV systems. (CO3)
- Q.17 What are the various components of a PV system.(CO2)
- Q.18 Explain series connections of PV Module. (CO2)
- Q.19 Explain Photovoltaic effect. (CO1)
- Q.20 What electrical safety precautions should be taken during PV system installation. (CO4)
- Q.21 Define PV mounting structure. Define its types in brief. (CO3)
- Q.22 Write any four steps of battery maintenance. (CO5)

Section-D

Note: Long answer questions. Attempt any two question out of three Questions. (2x8=16)

- Q.23 Explain in detail the design methodology for a solar PV system. (CO3)
- Q.24 Explain precautions and general tips for maintenance of solar PV system. (CO5)
- Q25 Briefly discuss BOS. (CO2)