

**5th Sem / Branch : Elect  
Sub. :Solar Panel Installation & Maintenance**

Time : 3Hrs.

M.M. : 100

**SECTION-A**

**Note:** Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 The power P collected by solar panels can be calculated \_\_\_\_\_.  
a)  $P = P_{max} * (i)$   
b)  $P = P_{max} * \sin(i)$   
c)  $P = P_{max} * \cos(i)$   
d) None of the mentioned
- Q.2 Death due to electrical shock is called?  
a) Electrocution      b) Heart Attack  
c) Brain Failure      d) None of the given
- Q.3 The total power across four PV cells of 0.5V connected in series when  $A_{cell} = 1\text{A}$  is  
a) 2.0 Watt      b) 0.5 Watt  
c) 2.5 Watt      d) 1.0 Watt
- Q.4 On site, your colleague has battery acid in his eyes?  
a) Run away so you don't get acid on you  
b) Call for friends  
c) Rinse his eyes with plenty of water  
d) Call the boss

- Q.5 When installing a solar module on a roof, things to be considered are?  
a) Obstructions on the roof  
b) The condition of the roof.  
c) Far shading  
d) All of the above
- Q.6 A battery bank consists to twelve 2V cells. Two were faulty and were replaced. What test should not be performed when system is reconnected?  
a) Polarity of the battery bank  
b) Voltage of each cell  
c) Overall battery bank voltage  
d) All of the above
- Q.7 Voltage adds and a current remains constant when modules are connected in  
a) Series      b) Parallel  
c) Series-Parallel      d) None of these
- Q.8 Solar tracking system is classified by its \_\_\_\_\_.  
a) Degree of rotation  
b) Axis for rotation  
c) Both A & B  
d) None of the given
- Q.9 Wages, salaries, bonus, vacation pay, insurance are examples of  
a) Financial motivation  
b) Non-financial motivation  
c) Extrinsitic motivation  
d) Intrinsic motivation
- Q.10 A \_\_\_\_ tilt allows the solar panel to self-clean:  
a) 15 degree      b) 10 degree  
c) 5 degree      d) None of the given

## **SECTION-B**

**Note:** Objective type questions. All questions are compulsory. (10x1=10)

- Q.11 Tell about standalone PV system?
- Q.12 Define Tilt Angle.
- Q.13 A \_\_\_\_\_ tilt allows the solar panel to self clean.
- Q.14 PPE stands for \_\_\_\_\_.
- Q.15 The operation of solar cell is based on the \_\_\_\_\_ effect.
- Q.16 Lead-acid batteries are source of AC.
- Q.17 The efficiency of the solar cell is about \_\_\_\_\_.
- Q.18 Expand MPPT.
- Q.19 Write the two example of monetary rewards.
- Q.20 Write one function of personnel management.

## **SECTION-C**

**Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

- Q.21 Analyze the working of solar system.
- Q.22 How can PV array can be protected from lightning surges?
- Q.23 Explain any five instructions regarding working safety with Solar PV system.
- Q.24 Write short note on delivery standards and personal management during PV installations.
- Q.25 Describe occupational health and safety assessment during solar installation.
- Q.26 What is importance of better communication between management and individual at workplace of PV installations?

- Q.27 What are significance of voltage, amperes and watt is solar cells?
- Q.28 How many types of semiconductors or solar cells used to fabricate PV cells or module?
- Q.29 Describe solar energy storage system.
- Q.30 Explain series and parallel connection of solar cells.
- Q.31 Explain Operating hazardous tools used at workplace.
- Q.32 Describe occupational health and safety assessment during solar installation.
- Q.33 Enlist the components used in PV power generation system.
- Q.34 Enlist the tools which is used during site survey and installation of PV system.
- Q.35 Explain how maintaining the work area safe and secure during PV installation.

## **SECTION-D**

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Explain the steps for designing and evaluation of various parameter of the solar PV system.
- Q.37 Draw a neat sketch of an induction type over current relay and describe its operation.
- Q.38 Explain Company's policies on incentives, delivery standard and Personal Management.