

No. of Printed Pages : 4
Roll No.

180954-C/170954-C

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 $A_{\text{cell}} = 1 \text{ A}$ 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

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- 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) Extrinsic 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

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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.