

SOLAR PV CELLS AND SYSTEMS

Dashboard

My courses

RN 277

General Information

SOLAR PV AND PV SYSTEMS FIRST SEM EXAMS 2021

Time left 0:40:40

Question 1

Answer saved

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1.00

Flag
question

Gassing of battery causes the following except

- a. b. Water production
- b. d. Oxygen production
- c. a. Carbon dioxide production
- d. c. Hydrogen production

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Question 2

Answer saved

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1.00

Flag
question

When the sun is over the equator, it is known as

- a. a. solstice
- b. b. altitude
- c. d. latitude
- d. c. equinox

[Clear my choice](#)

Question 3

Answer saved

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question

Direct coupled system consists of Solar PV Module and _.

- a. c. DC Load
- b. b. Charge Controller
- c. a. AC Load
- d. d. Inverter

[Clear my choice](#)

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Question 4

Answer saved

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question

Thermal shock from the difference in temperature of Solar Cells when exposed to water causes

- a. Texturing of Glass
- b. Etching of Glass
- c. Fracturing of Glass
- d. Hardening of Glass

Question 5

Answer saved

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1.00Flag
question

Solar PV obtain maximum power from the irradiance, when facing the sun perpendicularly.

Select one:

- True
- False

Question 6

Answer saved

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1.00Flag
question

Standalone (Off-Grid) PV systems are designed to operate _ of the utility power grid

- a. b. Coupled
- b. a. Independent
- c. c. Dependent
- d. d. Partially

Question 7

Answer saved

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1.00Flag
question

When the temperature of a PV Cell increases, the Power output decreases.

Select one:

- True
- False

Question 8

Answer saved

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1.00Flag
question

The best lifespan vs cost method is to keep the average cycle of battery at about _ depth of discharge

- a. c. 45%
- b. d. 10%
- c. b. 30%
- d. a. 20%

Question 9

Answer saved

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1.00 Flag
question

The testing that can be done in-line or at the end of PV Cells production is

- a. b. IV Test
- b. c. Texturing Method
- c. a. IR Imaging Test
- d. d. Czochralski Method

[Clear my choice](#)[Previous page](#)[Next page](#)

Question 10

Answer saved

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question

Types of battery used in Solar PV System are listed below except

- a. b. Flooded lead acid
- b. a. Sulphuric acid
- c. d. alkaline battery
- d. c. sealed lead acid

[Clear my choice](#)

Question 11

Answer saved

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1.00 Flag
question

Pyrheliometer is an instrument used to measure diffuse radiation.

Select one:

- True
- False

Question 12

Answer saved

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1.00

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question

The accepted method of connecting backup loads in Solar PV Systems is through a _.

- a.
- b. c. Back-up switch
- c. a. Programmable Logic Controller (PLC)
- d. b. Change-Over switch
- e. d. Subpanel

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Question 13

Answer saved

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question

The commonly used device to measure the sunshine duration is called

Time left 0:35:03

- a. b. Campbell–Stokes sunshine recorder.
- b. a. Lux meter
- c. c. Pyranometer
- d. d. Pyrheliometer

[Clear my choice](#)

Question 14

Answer saved

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1.00 Flag
question

In the latitudes from 0 – 15° the module will generally be tilted at 10° to the horizontal.

Select one:

- True
- False

Question **15**

Answer saved

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1.00

🚩 Flag
question

Maximum resistance occurs when there is short circuit.

Select one:

True

False

Previous page

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Next page

Question 16

Answer saved

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1.00Flag
question

These are factors that affect the efficiency of a solar cell except;

- a. c. Fill factor of Cells
- b. b. Shading of Cells
- c. a. Defects in PV Cells
- d. d. Dust accumulation on the Cell

Question 17

Answer saved

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1.00

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question

Solar radiation received on the surface is less when the sun is not directly overhead a surface.

Select one:

True

False

Question 18

Answer saved

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1.00

Flag
question

Inverse square law is used to measure solar intensity at a surface area.

Select one:

True


False

Time left 0:29:18

Question 19

Answer saved

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question

The three main types of inverters are below except

- a. b. AC Inverters
- b. c. Grid connected Inverters
- c. d. Bi-directional Inverters
- d. a. Off-grid/ Standalone Inverters

[Clear my choice](#)

Question 20

Answer saved

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1.00Flag
question

The disadvantages of crystalline technologies are as follows except being:

- a. b. limited in their physical form
- b. c. low in conversion efficiencies
- c. a. very labour-intensive
- d. d. material intensive

[Clear my choice](#)

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Question **21**

Answer saved

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1.00

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question

The Sun rays traverses the atmosphere and reaches the sea level at a peak of about 1000 W/m^2 .

Select one:

- True
- False

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[Next page](#)

Question 22

Answer saved

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1.00

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question

Crystalline silicon is the most widely used PV device because of its high conversion efficiencies, low bandgap energy and abundance.

Select one:

- True
- False

Question 23

Answer saved

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1.00

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question

In a Solar PV DC system, a dc load is connected directly to the battery.

Select one:

- True
- False

Question 24

Answer saved

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1.00

Flag
question

The advantages of thin film technologies are below except

- a. d. large manufacturing equipment base
- b. c. Molded into unique shapes
- c. b. Low labour-intensive
- d. a. Inexpensive material

Question 25

Answer saved

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1.00 Flag
question

The following are the functions of inverters except

- a. b. Reducing voltage fluctuations
- b. a. Reduce AC frequency
- c. d. Convert DC power to AC
- d. c. Ensure the right AC wave is produced

[Clear my choice](#)

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Question 26

Answer saved

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1.00

Flag
question

Energy produced by a battery is determined from the product of the battery's capacity and _.

- a. b. Voltage
- b. c. Power
- c. d. Resistance
- d. a. Current

[Clear my choice](#)

Question **27**

Answer saved

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question

Flat plate technologies are commonly subdivided into single (Mono) crystal and multi-crystal (Poly-crystal).

Select one:


True

False

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Question 28

Answer saved

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1.00 Flag
question

Photovoltaic power systems are generally classified according to the following except

- a. a. Functional and Operational Requirements
- b. b. Installation and Maintenance Schedule
- c. d. Equipment Integration to other Power Sources and Electrical Loads.
- d. c. Component Configurations

[Clear my choice](#)

Question 29

Answer saved

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1.00

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question

When left inactive with low state of charge for long periods, batteries develop the following except

- a. Stratification
- b. water loss
- c. Sulphation
- d. Self-discharge

[Clear my choice](#)

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Question **30**

Answer saved

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1.00

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question

The two methods used for testing Solar PV Cells are IR Imaging and I-V test.

Select one:

True

False

Question 31

Answer saved

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10.00Flag
question

Q1 State the types of Solar PV Systems and discuss under which conditions that you would select one over the other. (10 Marks)

Solar PV systems use solar panels to generate electricity from sunlight. There are three main types of solar PV systems namely grid-tied, hybrid and off-grid systems.

In a grid-tied solar PV system, Excess power is exported to the utility grid or national grind, thus when the household requires more power, those needs are met by imports from the grid. Likewise, Solar hybrid PV systems are hybrid power systems that combine solar power from a photovoltaic system with another power generating energy source. Additionally, An off-grid system requires no public electricity grid. Once solar power is used by the appliances in your property, any excess power will be sent to your battery bank. Once the battery is full it will stop receiving power from the solar system

In a condition where there is a need for a lower installation cost, I would select the grid tied solar PV system as I will have the assurance that they will not run out of electricity in the event that the solar panels produce less electricity and I would save money to buy an expensive battery back-up system required to store any excess energy.

Question 32

Answer saved

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question

The wafers are then polished to remove saw marks in a process called etching.

Select one:

True

False

Question 33

Answer saved

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1.00

Flag
question

A grid-tied inverter is connected to the utility grid through a step-up transformer.

Select one:

True

False

Question 34

Answer saved

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1.00 Flag
question

True North is the direction that a compass will point at any given location.

Select one:

- True
- False

Question 35

Answer saved

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1.00 Flag
question


These are factors that affect the efficiency of a solar cell except;

- a. d. Dust accumulation on the Cell
- b. a. Defects in PV Cells
- c. c. Fill factor of Cells
- d. b. Shading of Cells

Question **36**

Answer saved

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1.00

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question

Sun radiates energy in the form of electromagnetic waves which include heat, sound and light.

Select one:

True

False

Question 37

Answer saved

Marked out of
1.00Flag
question

In the northern hemisphere the modules will be positioned facing due north.

Select one:

- True
- False

Question 38

Answer saved

Marked out of
1.00Flag
question

Organic solar cells are novel solar cell types under research and testing.

Select one:

- True
- False

Question 39

Answer saved

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1.00

Flag

The solar azimuth angle is the angle between the sun's rays and the horizontal plane.

Select one:

- True
- False

Question 40

Answer saved

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question

Time left 0:09:23

The process used to create the boule or cylindrical ingot is known as

- a. c. Texturing Method
- b. d. Czochralski Method
- c. b. Floating Zone
- d. a. Purification

[Clear my choice](#)

Question 41

Answer saved

Marked out of
1.00

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question

Solar energy is defined as the conversion of sunlight energy by Solar PV Cells to produce Electricity.

Select one:

- True
- False

Question 42

Answer saved

Marked out of
1.00 Flag
question

These are the commercial battery voltages on the market except

- a. d. 9 V
- b. c. 12 V
- c. a. 2 V
- d. b. 6 V

[Clear my choice](#)

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Question 43

Answer saved


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1.00Flag
question

The number of equivalent hours per day that solar irradiance is at its peak level of 1 kW/m^2 is known as

- a. c. Insolation
- b. d. Peak Sun Hours
- c. a. Irradiance
- d. b. Sun Duration Hours

Question 44

Answer saved

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question

Anti-islanding is incorporated into _ for safety purposes.

- a. a. Direct-coupled systems
- b. c. Grid-Tied Systems
- c. b. Standalone Systems
- d. d. Hybrid Systems

[Clear my choice](#)

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Question 45

Answer saved

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1.00

Flag
question

System meters measure the following except

- a. a. Voltage
- b. d. Energy delivered or received
- c. b. Power
- d. c. Temperature

[Clear my choice](#)

Question 46

Answer saved

Marked out of
1.00Flag
question

At the open circuit situation, electric current is zero.

Select one:

 True False

Question 47

Answer saved

Marked out of
1.00Flag
question

A lack of electrons is known as

 a. c. Negative charge b. d. Current c. b. Positive charge d. a. Potential difference

Question 48

Answer saved

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1.00

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question

To help better utilise the available array maximum power output in direct coupled system, _ is connected to the PV Module.

- a. c. Rectifier
- b. d. DC/AC Converter
- c. a. Inverter
- d. b. DC/DC Converter

Question 49

Answer saved

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1.00Flag
question

72 PV Cells are connected in series to form a 24 V module.

Select one:

- True
- False

Question 50

Answer saved

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1.00Flag
question

The amount of solar power available per unit area is termed as Irradiation.

Select one:

- True
- False

Question 51

Answer saved

Marked out of
1.00Flag
question

The use of a solar tracker is ideal for a 1 or 2 module solar home system.

Select one:

- True
- False

Question 52

Answer saved

Marked out of
1.00Flag
question

Small blocks of silicon are in turn sliced into wafers using Saw wire.

Select one:

- True
- False

Question 53

Answer saved

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1.00Flag
question

Energy impinging on the surface of solar PV Cells on the earth's surface is affected by the following except

- a. c. Time of day
- b. b. Latitude
- c. d. Season
- d. a. Material

Question **54**

Answer saved

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1.00

🚩 Flag
question

In a Solar PV AC system, an ac load is connected to the inverter.

Select one:

True

False

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Time left 0:06:04

Question 55

Answer saved

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1.00

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question

Solar PV utilises ultraviolet and infrared light to produce electricity.

Select one:

- True
- False

Question 56

Answer saved

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1.00

Flag
question

Albedo is the term for when solar radiation reaches the top of the Earth's atmosphere and a large fraction of it is reflected.

Select one:

- True
- False

Question 57

Answer saved

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1.00

Flag
question

When the sun is over the tropics, it is known as

- a. c. equinox
- b. d. latitude
- c. b. altitude
- d. a. solstice

[Clear my choice](#)

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Time left 0:05:33

Question 58

Answer saved

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question

Screen Printing of PV Cells is done to increase absorption of solar radiation.

Select one:

True

False

Question 59

Answer saved

Marked out of
1.00

Flag
question

Encapsulation is done to PV Cells to prevent mechanical damage to Electrical contacts.

Select one:

True

False

Question 60

Answer saved

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Flag
question

The AC Power from a grid-connected Solar PV System should be off the same quality as the _ .

- a. d. Utility Grid
- b. a. Inverter
- c. c. Business Unit
- d. b. Household

[Clear my choice](#)

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Question 61

Answer saved

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1.00Flag
question

When incoming photon loses the amount of energy required to eject an electron from its shell, it is known as

- a. d. Charge separation
- b. b. Photo-ejection
- c. a. Radiation
- d. c. Photoelectric effect