Question 31

Answer saved

Marked out of 2

BDV is always measured by the following of the applied voltage:

Select one or more:

- [ ] a. Depends on applied voltage-waveform
- [ ] b. Average Value
- [ ] c. RMS value
- [x] d. Peak Value

Question 32

Answer saved

Marked out of 2

Which one is always true:

Select one or more:

- [ ] a. Corona inception voltage is equal to BDV
- [ ] b. Corona extinction voltage is always greater than BDV
- [ ] c. Corona inception voltage is always less than corona extinction voltage
- [x] d. Corona inception voltage is always greaterthan corona extinction voltage

Question 33

Answer saved

Marked out of 2

Most part of India receive solar radiation values between

Select one or more:

- [x] a. 400-700 $Cal/cm^2/day$
- [ ] b. 4-7 kW/m^2
- [x] c. 15-25 $MJ/m^2/day$
- [ ] d. None of these

Question 34

Answer saved

Marked out of 2

What is the correct statement about the effect of cell temperature and solar irradiance on solar cell *I-V* curve.

Select one or more:

- [ ] a. Open circuit voltage decreases with increase in solar irradiance
- [x] b. None of these
- [ ] c. Short circuit current decreases with increase in cell temperature
- [ ] d. Short circuit current increases with decrease in solar irradiance
- [ ] e. Open circuit voltage increases with increase in cell temperature

Question 35

Answer saved

Marked out of 2

The short circuit current and open circuit voltage of a solar module are 10A and 40V respectively. The maximum current and maximum voltage for peak power is 90% and 80% of the short circuit current and open circuit voltage respectively. What are the DC peak power output and Fill factor values respectively?

Select one or more:

- [ ] a. None of these
- [ ] b. 360 W, 88.9%
- [x] c. 288 W and 72%
- [ ] d. 400 W, 13.89%
- [ ] e. 320 W, 72%

Question 36

Answer saved

Marked out of 2

A solar PV cell with 100-cm^2 area and reverse saturation current $I_0 = 10^{-12}$ A/cm^2 produces short-circuit current of 80 mA/cm^2 under full sun and cell temperature of 25 $^{\circ}$C. Find the open-circuit voltage at full sun and for 25% sun irradiance respectively.

Select one or more:

- [ ] a. None of these
- [x] b. 0.64 V and 0.62 V
- [ ] c. 0.62 V and 0.60 V
- [ ] d. 0.63 V and 0.61 V
- [ ] e. 0.65 V and 0.61 V

Question 37

Answer saved

Marked out of 4

Calculate the voltage, current, and power delivered by a PV module with 72 identical cells wired in series. Each cell of this module has $I_{SC} = 4.5$ A, under solar irradiance of 1 kW/m^2, and cell temperature of 25°C. The reverse saturation current $I_0 = 6 \times 10^{-10}$ A, parallel resistance $R_P = 16.6\Omega$, series resistance $R_S = 0.005\ \Omega$, and junction voltage of each cell is 0.50 V.

Select one or more:

- [x] a. 4.32 A, 34.5 V, 148.5 W
- [ ] b. 324 A, 0.5 V, 162 W
- [ ] c. 3.16 A, 17.43 V, 55 W
- [ ] d. 4.5 A, 36 V, 162 W
- [ ] e. None of these

Question 38

Answer saved

Marked out of 2

STC stands for "Standard Test Conditions" and are the industry standard for the conditions under which a solar panel are tested. These includes

Select one or more:

- [ ] a. All of these
- [x] b. Air Mass (AM) ratio of 1.5.
- [x] c. Solar Irradiance of 1000 Watts/ sq.mt.
- [ ] d. Ambient Temperature of 25°C

Question 39

Answer saved

Marked out of 3

Which is not a necessary component of a grid connected solar PV plant ?

Select one or more:

- [ ] a. Solar panels
- [x] b. Data acquisition system
- [ ] c. AC energy meter
- [ ] d. AC distribution box
- [ ] e. Inverters

Question 40

Answer saved

Marked out of 4

Match the type of fuel with its installed capacity in Indian power system at present

Nuclear 2%

Hydro 12%

Gas 7%

Coal 55%

RES 24%

Question 41

Answer saved

Marked out of 3

A wind turbine system with 30m radius blade produces 1MW electrical energy at a wind speed of 12 m/s. Air density is 1.2 kg/m^3. What is the efficiency of the wind turbine blades, if the losses in the gear box and the generator together is 35% ?

Select one or more:

- [x] a. 52.5%
- [ ] b. 97.48%
- [ ] c. 34.12%
- [ ] d. None of these
- [ ] e. 66%

Question 42

Answer saved

Marked out of 3

A 60m diameter, three bladed wind turbine produces 800 kW at a wind speed of 36km/hr. If the tip speed of the rotor is 3600 m/min., What is the value of TSR?

Select one or more:

- [ ] a. None of these
- [ ] b. 1.67
- [ ] c. 4
- [ ] d. 100
- [x] e. 6

Question 43

Answer saved

Marked out of 3

A three blade wind turbine of 25 m radius is producing 700 kW at a wind speed of 18km/hr. Air density is 1.225 kg/m^3. What rpm does the rotor turn when it has tip speed of 60 m/sec?

Select one or more:

- [x] a. 22.9
- [ ] b. 94.20
- [ ] c. 50
- [ ] d. 26.7

Question 44

Answer saved

Marked out of 3

A wind turbine with 40m diameter blade produces 600 kW at a wind speed of 50.4 km/hr with a TSR of 6. If the generator needs to turn at 3600 rpm, what gear ratio is needed to match the rotor speed to the generator speed?

Select one or more:

- [ ] a. None of these
- [ ] b. 134.8
- [ ] c. 98.88
- [x] d. 89.87
- [ ] e. 67.4

Question 45

Answer saved

Marked out of 3

Which condition is true when wind rotor efficiency is 59.3%

Select one or more:

- [ ] a. Downstream wind speed= thrice of Upstream wind speed
- [x] b. Upstream wind speed= thrice of downstream wind speed
- [ ] c. Upstream wind speed= downstream wind speed
- [ ] d. Downstream wind speed= twice of Upstream wind speed
- [ ] e. Upstream wind speed= twice of downstream wind speed
- [ ] f. None of these

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