

1. A solar cell converts light energy into \_\_\_\_\_ **a) Electrical energy** b) Thermal energy c) Sound energy d) Heat energy
2. There are three types of the solar cells. **a) True** b) False
3. Series and parallel combination of the solar cell is known as \_\_\_\_\_ **a) Solar array** b) Solar light c) Solar sight d) Solar eye
4. Full form of FF in the solar field is \_\_\_\_\_ a) Form factor **b) Fill factor** c) Face factor d) Fire factor
5. Calculate Fill factor using the data:  $P_{max}=15$  W,  $V_{oc}=18$  V,  $I_{sc}=4$  A. a) .65 b) .59 **c) .20** d) .98
6. Material used for making solar cell is \_\_\_\_\_ **a) Silicon** b) Carbon c) Sodium d) Magnesium
7. The term photo voltaic comes from \_\_\_\_\_ a) Spanish **b) Greek** c) German d) English
8. A typical output of a solar cell is: A. 0.1 V **B. 0.26 V** C. 1.1 V D. 2 V
9. The efficiency of a solar cell may be in the range: A. 2 to 5% **B. 10 to 15%** C. 30 to 40% D. 70 to 80%
10. **A module in a solar panel refers to** a. Series arrangement of solar cells. b. Parallel arrangement of solar cells. **c. Series and parallel arrangement of solar cells.** d. None of the above.
11. The **current density of a photo voltaic cell ranges from** a. 10 – 20 mA/cm<sup>2</sup> **b. 40 – 50 mA/cm<sup>2</sup>** c. 20 – 40 mA/cm<sup>2</sup> d. 60 – 100 mA/cm<sup>2</sup>
12. The function of a solar collector is to convert.....  
 A. Solar Energy into Electricity  
 B. Solar Energy radiation  
**C. Solar Energy thermal energy**  
 D. Solar Energy mechanical energy
13. What is the rate of solar energy reaching the earth surface? **a) 1016W** b) 865W c) 2854W d) 1912W
14. What is total amount of solar energy received by earth and atmosphere? **a) 3.8 X 10<sup>24</sup> J/year** b) 9.2 X 10<sup>24</sup> J/year c) 5.4 X 10<sup>24</sup> J/year d) 2.1 X 10<sup>24</sup> J/year
15. The process of converting light (photons) to electricity (voltage) is called: **a) PV effect.** b) solar cell. c) radiation.
16. ....converts sunlight directly into solar power (electricity).  
 a) battery. **b) solar cell.** c) inverter.
17. The most expensive type of the solar cells is:  
 a) AMORPHOUS. b) POLYCRYSTALLINE. **c) MONOCRYSTALLINE.**
18. Which type of solar cells has highest efficiency:  
 a) AMORPHOUS. b) POLYCRYSTALLINE. **c) MONOCRYSTALLINE**

19. Which type of solar cells is more efficient in low lights:  
a) **AMORPHOUS**. b) POLYCRYSTALLINE. c) MONOCRYSTALLINE.
20. All the electricity produced by the solar panels is produced as:  
a) AC. b) **DC**. c) both DC and AC.
21. The device which converts the DC to AC is:  
a) transformer. b) relay. c) **inverter**.
22. Interactive PV systems operate:  
a) stand alone. b) **in parallel with the grid**. c) none.

The initial cost of PV systems is:  
a) low. b) medium. c) **High**.

Energy production from PV systems depends on:  
a) location. b) weather. c) **both a and b**

The running cost of PV systems is:  
a) high. b) **low**. c) medium.

To insure that your PV system will work all the day you should use:  
a) converter. b) **battery**. c) none.

The lifetime of PV system is:  
a) **long**. b) short. c) medium.

The efficiency of PV systems in general is:  
a) high b) **low** c) medium.

Five Components used in Solar Photovoltaic Plant:

1. Solar PV panels
2. Inverter
3. Charge controller
4. ACDB and DCDB
5. Battery (Optional)

The combination of solar cells makes a **module**. The solar panel is a combination of solar modules. A group of solar panels is known as an **array**.

ACDB is known as **AC Distribution Box**, which places at AC part of the system (after inverter) and DCDB is known as **DC Distribution Box**. These devices use

for the protection purpose and contain **MCB/MCCB** and **SPD (Surge protection device)**

**Options: DC Distribution Box, SPD (Surge protection device), AC Distribution Box, MCB/MCCB, none**

The battery is an optional part of the solar system.  
True False

In the case of a stand-alone system, where the grid is not available, we have to use the **battery** for store access amount of power and for back up.

**In which collector the efficiency is maximum \_\_\_\_\_**

- Flat Plate
- Line Focusing
- Evacuated Tube
- Paraboloid Dish**

**The Pyranometer measures \_\_\_\_\_**

- Direct Radiation
- Diffusion Radiation
- Both a and b**
- None of the above

**The single solar cell voltage is about \_\_\_\_\_**

- 0.2 V
- 0.5 V**
- 1.0 V
- 2.0 V

**The solar heater life span is around \_\_\_\_\_**

- 4-5 years
- 2-6 years**

- 1-2 years
- 6-7 years

**The radiation of solar includes \_\_\_\_\_**

- Ultraviolet light and Visible light
- Radio waves and Infrared waves
- X rays and Gamma rays
- All of the above

**The solar energy directly used for \_\_\_\_\_**

- Drying
- Water heating
- Distillation
- All of the above

**From the sun the solar energy is radiated in the form of \_\_\_\_\_ waves**

- Electromagnetic waves
- Infrared waves
- Transverse waves
- None of the above

**The Infrared radiations, visible radiations and small amount of ultraviolet radiations are collectively known as \_\_\_\_\_ energy**

- Light energy
- Heat energy
- Solar energy
- None of the above

**In how many ways we can harness solar energy?**

- One-way
- Two ways

- Three ways
- Four ways

**The solar constant also called as \_\_\_\_\_**

- Solar intensity
- Solar irradiance
- Both a and b
- None of the above

**What is the S.I unit of the solar constant?**

- S.I unit=  $W^2/m^2$
- S.I unit=  $Wm^2$
- S.I unit=  $W/m^2$
- None of the above

**What are the non-renewable energy sources of energy?**

- Energy from wind, sun
- Energy from flowing water, ocean waves
- Fossil fuels such as coal, petroleum
- Both a and b

**Solar energy can leads to generate the electricity through \_\_\_\_\_**

- Heat engines
- Photovoltaics
- Heat engines and Photovoltaics
- None of the above

**The solar energy is essentially useful in \_\_\_\_\_ contexts**

- Solar thermal
- Solar photovoltaics
- Solar thermal and Solar photovoltaics

- None of the above

**Choose the renewable source of energy**

- Coal
- Petroleum
- Oil
- Biomass

**What are the advantages of the solar cells?**

- Maintenance is very low
- No pollution
- Maintenance is very high
- Both a and b

**What are the drawbacks of using solar cells?**

- Very expensive
- Efficiency is low
- Wire which is used for connections is made up of silver material
- All of the above

**The direct method of solar energy utilization can be classified into \_\_\_\_\_?**

- Solar thermal
- Solar photovoltaic
- Solar thermal and solar photovoltaic
- None of the above

**What are the characteristics of the solar cells?**

- Open-circuit voltage and short circuit current
- Fill factor
- Power conversion efficiency
- All of the above

**What is the basic component of the PV system (Photovoltaic system)?**

- Battery
- Charge collector
- Solar cell
- All of the above

**The solar cookers utilizes the \_\_\_\_\_ energy to cook food**

- Infrared rays
- Ultraviolet rays
- Gamma rays
- None of the above

**A combination of solar panels connected together is known as \_\_\_\_\_**

- Solar cells
- Solar array
- Array
- None of the above

**What are the renewable energy sources of energy?**

- Energy from wind, sun
- Energy from flowing water, ocean waves
- Fossil fuels such as coal, petroleum
- Both a and b

**What are the renewable sources of energy?**

- Solar energy, wind energy, hydroelectric power
- Geothermal, ocean
- Hydrogen, biomass
- All of the above

**Choose non-renewable source of energy**

- Wind energy
- Fossil fuels
- Hydrogen
- Biomass

The main components of the solar thermal power systems are \_\_\_\_\_

- Reflectors
- Receiver
- Both a and b
- None of the above

Which meter is used to measure the solar radiation flux \_\_\_\_\_

- Pyranometer
- Sunshine Recorder
- Anemometer
- All of the above