

Renewable Energy Mastery

Renewable Energy · Practice Test · 8 Questions

1. Which element is the primary byproduct of the reaction within a hydrogen fuel cell used for electricity generation?

- A) Carbon monoxide
- B) Water vapor
- C) Nitrogen dioxide
- D) Sulfur dioxide

2. What is the physical principle that allows a photovoltaic cell to convert light directly into electricity?

- A) The photoelectric effect
- B) The piezoelectric effect
- C) The Seebeck effect
- D) The Thomson effect

3. Which renewable energy source relies on the Earth's internal thermal gradient to produce steam for electricity generation?

- A) Biomass
- B) Tidal energy
- C) Geothermal energy
- D) Hydroelectric power

4. In the context of wind turbines, what is the 'Betz Limit'?

- A) The maximum voltage output of a single turbine
- B) The theoretical maximum efficiency of a wind turbine
- C) The minimum wind speed required to engage the gearbox
- D) The structural fatigue limit of turbine blades

5. Which country holds the largest share of global installed capacity for pumped-storage hydropower?

- A) United States
- B) China
- C) Norway
- D) Brazil

6. What is the primary chemical compound that makes up the majority of biogas generated from anaerobic digestion?

- A) Methane
- B) Ethane
- C) Propane
- D) Butane

7. In solar thermal energy systems, what substance is most commonly used in concentrated solar power (CSP) plants to store thermal energy for overnight electricity production?

- A) Liquid nitrogen
- B) Molten salt
- C) Glycerol
- D) Silicone oil

8. What is the primary environmental advantage of 'run-of-river' hydroelectric plants compared to traditional large-scale dam reservoirs?

- A) Higher energy density
- B) Lower carbon emissions
- C) Reduced disruption to local river ecosystems
- D) Greater voltage stability