

UNIT-V DIRECT ENERGY CONVERSION**Fill in the Blanks**

1. Direct energy conversion is the conversion of energy from one form to another without using _____ parts.
Answer: Mechanical
2. A solar cell converts solar energy directly into _____ energy.
Answer: Electrical
3. The conversion of heat directly into electricity is called the _____ effect.
Answer: Thermoelectric
4. The device used in thermoelectric conversion is called a _____.
Answer: Thermocouple
5. Fuel cells convert chemical energy directly into _____ energy.
Answer: Electrical
6. The photovoltaic effect is used in _____ cells.
Answer: Solar
7. In fuel cells, hydrogen reacts with _____ to produce electricity.
Answer: Oxygen
8. The efficiency of direct energy conversion systems is generally _____ due to fewer losses.
Answer: High
9. Thermionic emission involves the release of electrons from a heated _____.
Answer: Metal
10. Direct energy conversion avoids the use of _____ and generators.
Answer: Turbines

Multiple Choice Questions (MCQs)

1. Direct energy conversion involves:
A) Mechanical energy conversion
B) Multi-step energy conversion
C) Conversion without mechanical parts
D) Chemical reactions only
Answer: C) Conversion without mechanical parts
2. Which device converts solar energy directly into electricity?
A) Turbine
B) Solar cell
C) Generator
D) Motor
Answer: B) Solar cell
3. Thermoelectric effect converts:
A) Heat to mechanical energy
B) Heat to electrical energy
C) Electrical to heat
D) Mechanical to heat
Answer: B) Heat to electrical energy
4. Fuel cells produce electricity from:
A) Nuclear energy
B) Chemical energy
C) Mechanical energy
D) Solar energy
Answer: B) Chemical energy
5. The photovoltaic effect is used in:
A) Batteries

- B) Solar cells
- C) Motors
- D) Pumps

Answer: B) Solar cells

6. Thermionic converters work based on:

- A) Magnetic field
- B) Electron emission
- C) Fluid flow
- D) Pressure difference

Answer: B) Electron emission

7. Which of the following is NOT a direct energy conversion device?

- A) Fuel cell
- B) Solar cell
- C) Steam turbine
- D) Thermocouple

Answer: C) Steam turbine

8. Fuel cells commonly use:

- A) Nitrogen
- B) Hydrogen
- C) Helium
- D) Carbon dioxide

Answer: B) Hydrogen

9. Direct energy conversion systems are generally:

- A) Complex
- B) Inefficient
- C) Simple and efficient
- D) Expensive only

Answer: C) Simple and efficient

10. Thermocouples are used to measure:

- A) Pressure
- B) Temperature
- C) Speed
- D) Voltage only

Answer: B) Temperature