

1. Which of the following is a non-renewable energy resource?

- a) Wind
- b) Solar
- c) Coal
- d) Biomass

Answer: c) Coal

Explanation: Coal is a non-renewable energy resource because it takes millions of years to form and cannot be replaced on a human timescale.

2. What is the primary environmental concern associated with burning fossil fuels?

- a) Depletion of ozone layer
- b) Soil erosion
- c) Greenhouse gas emissions
- d) Acid rain

Answer: c) Greenhouse gas emissions

Explanation: Burning fossil fuels releases greenhouse gases such as carbon dioxide into the atmosphere, contributing to climate change and global warming.

3. Which renewable energy source relies on the Earth's natural heat to generate electricity?

- a) Wind
- b) Solar
- c) Geothermal
- d) Biomass

Answer: c) Geothermal

Explanation: Geothermal energy utilizes heat from within the Earth to generate electricity or provide heating and cooling for buildings.

4. What is the main advantage of nuclear energy compared to fossil fuels?

- a) Low carbon emissions
- b) Abundance of fuel
- c) High efficiency
- d) Minimal environmental impact

Answer: a) Low carbon emissions

Explanation: Nuclear energy produces electricity with minimal greenhouse gas emissions compared to fossil fuels like coal and natural gas.

5. Which energy storage method involves pumping water to a higher elevation during times of low demand?

- a) Battery storage
- b) Pumped hydro storage
- c) Compressed air energy storage
- d) Flywheel energy storage

Answer: b) Pumped hydro storage

Explanation: Pumped hydro storage involves storing energy by pumping water uphill to a reservoir and releasing it to generate electricity during periods of high demand.

6. Which renewable energy source relies on the kinetic energy of ocean waves?

- a) Tidal
- b) Solar

- c) Wind
- d) Wave

Answer: d) Wave

Explanation: Wave energy captures the kinetic energy of ocean waves to generate electricity.

7. What is a potential environmental trade-off of large-scale wind farms?

- a) Air pollution
- b) Noise pollution
- c) Water pollution
- d) Soil erosion

Answer: b) Noise pollution

Explanation: Large-scale wind farms can produce noise pollution due to the rotation of turbine blades, which may affect nearby communities.

8. Which alternative energy source involves the conversion of sunlight into electricity?

- a) Biomass
- b) Wind
- c) Solar
- d) Tidal

Answer: c) Solar

Explanation: Solar energy technologies convert sunlight into electricity using photovoltaic cells or concentrated solar power systems.

9. What is a major challenge associated with the widespread adoption of hydrogen as a fuel source?

- a) Limited availability of hydrogen
- b) High cost of production
- c) Difficulty in storage and transportation
- d) Environmental pollution

Answer: c) Difficulty in storage and transportation

Explanation: Hydrogen is difficult to store and transport, requiring specialized infrastructure, which is a major challenge for its widespread adoption as a fuel source.

10. Which energy source is considered the most abundant on Earth?

- a) Solar
- b) Wind
- c) Biomass
- d) Geothermal

Answer: a) Solar

Explanation: Solar energy is the most abundant energy source on Earth, as it comes from the sun and is virtually limitless.

11. What is the process of converting coal into a synthetic gas known as?

- a) Coalification
- b) Combustion
- c) Gasification
- d) Liquefaction

Answer: c) Gasification

Explanation: Coal gasification is the process of converting coal into a synthetic gas consisting

primarily of hydrogen and carbon monoxide.

12. Which energy source has the lowest environmental impact during electricity generation?

- a) Coal
- b) Natural gas
- c) Nuclear
- d) Biomass

Answer: c) Nuclear

Explanation: Nuclear energy has a lower environmental impact during electricity generation compared to fossil fuels like coal and natural gas, as it produces minimal greenhouse gas emissions.

13. What is the primary advantage of biomass energy?

- a) Abundant resource availability
- b) Low cost of production
- c) Carbon neutrality
- d) High energy density

Answer: c) Carbon neutrality

Explanation: Biomass energy is considered carbon-neutral because the carbon dioxide released during combustion is offset by the carbon dioxide absorbed by plants during growth.

14. Which energy source is derived from organic materials such as wood, crop residues, and animal waste?

- a) Geothermal
- b) Hydroelectric

- c) Biomass
- d) Tidal

Answer: c) Biomass

Explanation: Biomass energy is derived from organic materials and can be used to generate heat, electricity, or biofuels.

15. What is the main drawback of relying solely on wind and solar energy for electricity generation?

- a) Intermittency
- b) High installation costs
- c) Land use requirements
- d) Limited availability

Answer: a) Intermittency

Explanation: Wind and solar energy are intermittent energy sources, meaning they are not available all the time and their generation fluctuates based on weather conditions.

16. Which energy storage method converts electricity into chemical energy for later use?

- a) Pumped hydro storage
- b) Battery storage
- c) Flywheel energy storage
- d) Compressed air energy storage

Answer: b) Battery storage

Explanation: Battery storage systems convert electricity into chemical energy for storage and later conversion back into electricity when needed.

17. Which renewable energy source is generated by harnessing the gravitational pull of the moon?

- a) Tidal
- b) Geothermal
- c) Wave
- d) Biomass

Answer: a) Tidal

Explanation: Tidal energy is generated by the gravitational pull of the moon on Earth's oceans, causing tidal movements that can be harnessed to generate electricity.

18. What is the primary environmental concern associated with hydroelectric dams?

- a) Habitat destruction
- b) Air pollution
- c) Noise pollution
- d) Groundwater contamination

Answer: a) Habitat destruction

Explanation: Hydroelectric dams can lead to habitat destruction and disruption of aquatic ecosystems due to changes in water flow and reservoir creation.

19. Which energy storage method involves compressing air and storing it in underground caverns?

- a) Pumped hydro storage
- b) Battery storage
- c) Flywheel energy storage
- d) Compressed air energy storage

Answer: d) Compressed air energy storage

Explanation: Compressed air energy storage systems store energy by compressing air and storing it in underground caverns or tanks for later use in electricity generation.

20. What is the potential drawback of relying on nuclear energy for electricity generation?

- a) High carbon emissions
- b) Limited fuel availability
- c) Risk of radioactive contamination
- d) Intermittency

Answer: c) Risk of radioactive contamination

Explanation: Nuclear energy carries the risk of radioactive contamination in the event of accidents or improper waste management, which poses significant environmental and health concerns.