- 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.