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Continuing Education Course #505
Net Zero Principles for Engineers

1. Which is another term for net zero?
 - a. Gross zero
 - b. Carbon neutral
 - c. Carbon net
2. Which is NOT a main impact of climate change?
 - a. Higher Temperatures
 - b. Rising Sea Levels
 - c. Drought Conditions
 - d. Increase in Forest Density
3. Which are the three categories of the "triple bottom line"?
 - a. Economic, Environmental & Social
 - b. Economic, Environmental & Chemical
 - c. Ergonomic, Environmental & Social
4. Which areas require balancing to be considered a Net Zero Federal Building?
 - a. Emissions, Greenspace and Water
 - b. Energy, Waste and Flood Protection
 - c. Energy, Waste and Water
5. Which is NOT a way to offset GHG emissions?
 - a. Capture GHG from the atmosphere
 - b. Release GHG emissions high into the atmosphere
 - c. Restore natural areas that capture GHG
6. Which is a human made only GHG?
 - a. H₂O
 - b. HFC's
 - c. CH₄
 - d. O₃
7. Which GHG has the largest GWP factor?
 - a. N₂O
 - b. CH₄
 - c. CO₂
8. What kind of emissions are associated with electrical power?
 - a. Direct emissions
 - b. Indirect emissions

9. What is the CDE of 2 lb of methane using a 100 year GWP factor?

- a. 2
- b. 40
- c. 80

10. Which is NOT a carbon sink?

- a. Forest
- b. Peatland
- c. Soil
- d. Parking lot

11. Which is not a type of direct air capture?

- a. Gas DAC
- b. Solid DAC
- c. Liquid DAC

12. Which is NOT a key transformation to achieve NZE 2050?

- a. Energy efficiency
- b. Coastal migration
- c. Decarbonizing electricity
- d. CO₂ removal

13. Which would NOT help to achieve net zero?

- a. Clear a nearby forest to expand
- b. Change fleet to electric vehicles
- c. Invest in carbon capture technology

14. Which basic formula represents net zero energy?

- a. Delivered energy > exported renewable energy
- b. Delivered energy < exported renewable energy
- c. Renewable energy used > non-renewable energy

15. What do source energy conversion factors account for?

- a. Metric to Imperial Units
- b. ENERGY STAR rating
- c. Energy consumed & lost to create and deliver the energy

16. A building has 15 BTU of electricity delivered, 20 BTU of solar utilized onsite, and 10 BTU of solar exported. Is it a zero energy building?

- a. Yes
- b. No

17. What percent of waste can go to a landfill to be considered net zero waste?

- a. 0%
- b. 10%
- c. 50%

18. What happens at a waste-to-energy facility?

- a. Facility with net zero waste
- b. Garbage is burned to product electricity
- c. Compost produces renewable natural gas

19. What is water reuse?

- a. Using water again and again indefinitely with no discharge
- b. Using treated wastewater as a water source
- c. Zero liquid discharge

20. What is the formula for Net Zero Water?

- a. Alternative water use + Water returned > Freshwater consumption
- b. Alternative water use - Water returned > Freshwater consumption
- c. Alternative water use + Water returned < Freshwater consumption

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