

1. Which of these types of systems is more sustainable?
  - A. Open System
  - B. Closed System
  - C. Positive System
  - D. Negative System
  
2. What are the three major concepts integral to green building and sustainability? [Choose three]
  - A. Systems thinking
  - B. Leverage Points
  - C. Life-cycle Approach
  - D. Integrative processes
  
3. What type of feedback loop enables a system to self-correct and stay within a particular range of function or performance and helps to keep the system stable?
  - A. Open Feedback Loop
  - B. Closed Feedback Loop
  - C. Positive Feedback Loop
  - D. Negative Feedback Loop
  
4. Which of these is an example of a positive feedback loop? [Choose two]
  - A. Population Growth
  - B. Hunting License
  - C. Energy meter
  - D. Thermostat
  - E. Climate Change
  
5. What is the definition of heat island effect?
  - A. The resistance of hardscapes, such as light, reflective pavement and buildings to sunlight.
  - B. The reflection of heat by hardscapes, such as dark, reflective pavement and buildings, and its absorption to surrounding areas.
  - C. The absorption of heat by hardscapes, such as dark, nonreflective pavement and buildings, and its radiation to surrounding areas.
  - D. The emission of heat from sidewalks, patios, park lots, and roofs at night.
  
6. Which of these best describes a positive feedback loop?
  - A. A system in which materials are constantly brought in from the outside, used in the system, and then released outside the system in a form of waste.
  - B. A signal for a system to stop changing when a response is no longer needed.
  - C. Self-reinforcing loops in which a stimulus causes an effect and the loop produces more of that effect.
  - D. A system that exchanges minimal materials and elements with its surroundings; systems are linked with one another to make the best use of byproducts.
  
7. Which of these is an example of a leverage point? [Choose three]
  - A. Rules
  - B. Corporation
  - C. Self-Organization
  - D. Goals

8. In a green building project, which of these should the project team consider as the most important to the design decision when selecting materials to meet the project's sustainability goals?
- A. First Cost
  - B. Lowest Price
  - C. Embodied Energy
  - D. Availability
9. What is the definition of Life Cycle Assessment (LCA)?
- A. Looking at all stages of a project, product or service, adding the dimension of longevity to whole systems thinking.
  - B. An analysis of the environmental aspects and potential impacts associated with a product, process, or service.
  - C. A process of costing that looks at both purchase and operating costs as well as relative savings over the life of the building or product.
  - D. A formal review process of the design of a project based on its intended function in order to identify potential alternatives that reduce costs and improve performance.
10. A project installed Photovoltaic (PV) panels on a building's roof to offset the buildings electricity use. The initial cost for the PV panels and installation was \$20,000. The design engineer estimated an annual energy cost savings for the project of \$2500 and an annual savings for electricity of \$1500. The project received a lump sum \$5000 tax rebate for installing the PV system. How many years will it take for the system to achieve a simple payback for the project?
- A. 6 years
  - B. 8 years
  - C. 10 years
  - D. 12 years
- Simple Payback =  $(\$20,000 - \$5000) / \$1500 = 10$  years**
11. Designers working to achieve a project's green building goals should work using what type of building process?
- A. Integrated
  - B. Cohabitation
  - C. Isolation
  - D. Co-Located
12. What are the phases that comprise an integrative process? [Choose three]
- A. Discovery
  - B. Design and Construction
  - C. Measurement and Verification
  - D. Occupancy, operations, and performance feedback
13. What is a benefit of a landscape architect using native and adaptive plants for the projects landscape design? [Choose two]
- A. Reduces water consumption
  - B. Reduces greenhouse gas emissions
  - C. Provides habitat for local fauna
  - D. Saves energy
14. Which of these design decisions has a major effect on reducing energy demand for a building?
- A. Window Selection
  - B. Building Orientation
  - C. Site Selection
  - D. Climate

15. The integrative process requires more time and collaboration during which of these phases than conventional practices? [Choose two]
- A. Conceptual
  - B. Design
  - C. Construction
  - D. Commissioning
16. Which of these are benefits of composting? [Choose two]
- A. Reduces waste hauling costs
  - B. Provides habitat for local fauna
  - C. Improves the quality of the soil
  - D. Reduces GHG emissions related to trash hauling
17. Which of these best describes suburban growth that typically requires additional roads and resources, such as; energy, water, sewage systems, and materials to support that growth?
- A. Neighborhood Development
  - B. Decay
  - C. Urban Renewal
  - D. Sprawl
18. If a project team is unfamiliar with a green building technology and the owner would like for them to implement it what should they do?
- A. Scrap the design and tell the owner it can't be done
  - B. Use a traditional approach in place of the green strategy in order to save the owner money
  - C. Hire a green building expert to help them with the design and implementation of the green strategy
  - D. Call the LEED hotline and ask for help
19. Actions taken by a project team during which of these phases are essential to achieving a project's environmental goals cost-effectively?
- A. Discovery
  - B. Design and Construction
  - C. Measurement and Verification
  - D. Occupancy, operations, and performance feedback
20. The Integrative process Design and Construction phase is also known conventionally as?
- A. Pre-schematic design
  - B. Schematic Design
  - C. Construction Document (CD)
  - D. Design-Bid-Build