LEED BD+C Practice Exam 3 – USGBC Web Site

1. Which of the following factors influence the recycling efforts within buildings?
   A. Ignorance about recycling
   B. Non-availability of recycling programs in town
   C. Lack of convenient, physical spaces for recycling
   D. Lack of education

2. A project team for a school project will reuse the shell of an existing building and recycle the rest of the construction and demolition debris. Which of the following MR credits will this have a positive affect? (Choose 2)
   A. MR Credit Construction and Demolition Waste Management.
   B. MR Credit Building Life-Cycle Impact Reduction
   C. MR Prerequisite Storage and Collection of Recyclables
   D. MR Credit Furniture and Medical Furnishings

3. A project located in Manhattan, NY has limited storage area for waste containers. Which of the following waste management strategies would you recommend for this project to earn MR credit Construction waste management?
   A. Commingled collection
   B. On-site separation
   C. Dumping in the ocean
   D. Leaving items on the curb for people to pick up

4. A medical facility is considering Mercury-free alternatives to low-wattage fluorescent lamps, such as LED or LEC in order to meet Prerequisite PBT Source Reduction-Mercury. Which of the following must be true for the project to use this strategy?
   A. Mercury-free alternatives should energy efficient as com parable mercury-containing lamps.
   B. None of the above
   C. Mercury-free alternatives should be at least as energy efficient as comparable mercury -containing lamps.
   D. All Mercury-free alternatives qualify for this prerequisite

5. A project is pursuing MR credit building life-cycle impact reduction using Option 3 Building and Material Reuse. Which of the following determine the number of points the projects can earn using this option?
   A. Percentage of completed project surface area reused, less demolished surface area
   B. Percentage of completed project surface area reused
   C. Percentage of completed project area reused
   D. Percentage of surface area of the existing building structure,

6. A project is pursuing MR Credit Building Product Disclosure and Optimization- Environmental Product Declarations using Option 2. Multi-Attribute Optimization. What should the project teams do in order to qualify for exemplary performance?
   A. Use products that comply with one of the credit criteria for 20%, by cost, of the total value of permanently installed products in the project.
   B. Use at least 20 different permanently installed products sourced from at least five different manufacturers that meet one of the disclosure criteria
   C. Purchase 95%, by cost, of permanently installed building products that meet the required attributes
   D. Purchase 75%, by cost, of permanently installed building products that meet the required attributes

7. Which of the following must be true for the scope of EPDs to adhere with MR Credit Building Product Disclosure and Optimization - EPD requirements?
   A. The scope of any EPD must be at least cradle-to-grave
   B. The scope of any EPD must be at least cradle-to-cradle
   C. The scope of any EPD must be at least gate-to-gate
   D. The scope of any EPD must be at least cradle-to-gate

8. Which of the following is true for a healthcare project, pursuing MR Credit Medical Furniture and Furnishings and MR Credit Building Product Disclosure and Optimization?
   A. Free standing furniture items included in MR Credit Medical Furniture and Furnishings cannot be counted in any Building Product Disclosure and Optimization credits
   B. Freestanding furniture items can be counted in any Building Product Disclosure and Optimization credits as long as it is consistent
   C. Freestanding furniture items can be counted in any Building Product Disclosure and Optimization credits
   D. None of the above

9. A project pursuing MR Credit Building Product Disclosure and Optimization- Sourcing of Raw Materials is using option 1. Raw Material Source and Extraction Reporting to comply with credit requirements. The project identified 3 products that are re-used and also have recycled content in it. Which of the following must be true for the project to utilize these products towards credit achievement?
   A. The products cannot be used towards credit achievement
   B. The products can only qualify for either "recycled content" or "reuse" for credit achievement
   C. The project should submit a CIR
   D. The products qualify for both "recycled content" as well as "reuse " for credit achievement

10. A project pursuing MR Credit Building Product Disclosure and Optimization- Sourcing of Raw Materials is using Option 2. Leadership Extraction Practices to comply with credit requirements. Which of the following products have the greatest impact towards credit achievement?
    A. Products meeting bio-based materials criteria
    B. Products meeting wood products criteria and sourced (extracted, manufactured, purchased) within 100 miles (160 km) of the project site
    C. Products meeting extended producer responsibility criteria
    D. Products with Multi-Attribute Optimization

11. A project is pursuing MR Credit Building Product Disclosure and Optimization- Material Ingredients using Option 1. Material Ingredient Reporting to comply with credit requirements. Which of the following materials would comply? Choose 3
    A. A product with EPD
    B. The end use product has a published, complete Health Product Declaration
    C. The end use product has been certified at the Cradle to Cradle v3 Bronze level.
    D. The end use product has been certified at the Cradle to Cradle v2 Basic level
    E. A product with recycled content
    F. The end use product has been certified at the Cradle to Grave v3 Bronze level.

12. A healthcare project is pursuing PBT Source Reduction- Lead, Cadmium, and Copper. Which of the following should the project teams do specify Lead?
    A. Specify Lead used for radiation shielding and copper used for MRI shielding
    B. Specify and use lead- free roofing and flashing
    C. Specify and use electrical wire and cable with lead content less than 500 parts per million
    D. None
    E. Specify products with the "lead free" label as defined by the Safe Drinking Water Act (SDW A)

13. During construction, a project team prepares a plan to perform building flush-out to achieve EA Credit IAQ Assessment. Due to some delays, the construction schedule gets extended. Which of the following could the project do if they run out of time to complete a flush-out?
    A. The project will have to pursue option 1 flush-out to earn EA Credit IAQ Assessment
    B. The project will not be able to earn EA Credit IAQ Assessment
    C. The project could pursue building flush-out during occupancy
    D. The project could change the plan for flush-out and pursue Option 2 - Air Testing to earn EA Credit IAQ Assessment

14. After identifying the location of each measurement node in the actual space, a project team took daylight measurements in all regularly occupied spaces in January after project completion. Which action must occur for the project to earn EA Credit Daylight using option 3 measurement?
    A. Submit a narrative or output file describing daylight simulation program, simulation inputs, and weather file
    B. Submit a list of compliant spaces with their calculated illuminance values
    C. Repeat the measurement process using the same nodes to determine compliant floor areas.
    D. Submit Geometric plots from simulations

15. The project team for a healthcare project is meeting to discuss LEED criteria to meet the requirements for EA credit Acoustic Performance. In addition to sound isolation and background noise what else would the project need to address to earn EA Credit Acoustic Performance?
    A. Sound reinforcement for each patient room
    B. Masking systems components
    C. Speech privacy
    D. Reverberation time criteria for each patient room

16. The HVAC contractor for a small office project is planning to perform flush-out construction ends and the building has been completely cleaned in order for the project to earn EA Credit Indoor Air Quality Assessment. Which of the following actions he must take If occupancy is desired before the flush-out is completed?
    A. Conduct a baseline IAQ test
    B. The space can be only occupied after delivery of a minimum of 14,000 cubic feet of outdoor air per square foot
    C. The building cannot be occupied unless building flush-out is complete
    D. The space can be only occupied after delivery of a minimum of 3,500 cubic feet of outdoor air per square foot

17. A project design with mechanical ventilation should use which of the following filtration to earn EA Credit Enhanced IAQ Credit IAQ Assessment through option 2. air-quality testing? (Choose 2)
    A. MERV 13 (F7) or higher filters at each local distribution point
    B. MERV 8 (F5) or higher filters for each return air grille and return or transfer duct inlet opening
    C. MERV 13 (F7) or higher filters for each outdoor air system
    D. MERV 13 (F7) or higher filters for each outdoor exhaust

18. Earning which of the following credit will be helpful for a project trying to earn EA Credit IAQ Assessment through option 2. air-quality testing? (Choose 2)
    A. EA Credit Low-Emitting Materials
    B. EA Credit Interior Lighting
    C. EA Prerequisite Environmental Tobacco Smoke Control
    D. EA Credit Thermal Comfort
    E. EA Credit Construction Indoor Air Quality Management Plan

19. Which of the following actions should a HVAC contractor take when the air quality test for some of the spaces show concentration more than the limits set in EA Credit IAQ Assessment?
    A. Perform the air quality test again
    B. Conduct the flush-out again for the whole building
    C. Conduct an additional flush-out for the non-compliant spaces and perform air quality test again
    D. Conduct an additional flush-out of the entire building and retest for the noncompliant concentration

20. A project has successfully implemented EA credit Low emitting materials. Which forms of documentation are acceptable for a project team to submit to document that a product is low-emitting? (Choose 3)
    A. Licensed professional exemption
    B. EPD
    C. HPD
    D. Testing reports
    E. Third-party certification
    F. MSDS

21. The project team for a new construction project decides to pursue EA Credit Low- Emitting Materials and EA Credit Construction Indoor Air Quality Management Plan. As guidance during selection and installation of products and materials, the construction team incorporates low-emitting products into construction. Which other EA credit will have a positive effect due to this?
    A. EA Prerequisite Minimum Indoor Air Quality Performance
    B. EA Credit Indoor Air Quality Assessment
    C. EA Credit Daylight
    D. EA Credit Thermal Comfort

22. A hotel project decides to do air-testing to achieve EA Credit IAQ Assessment. Which of the following must be true in order for the project to earn the credit?
    A. The test areas cannot be larger than 5,000 square feet
    B. The test must occur after normal occupied hours
    C. The test areas cannot be larger than 15,000 square feet
    D. The measurement equipment must be positioned between 2 and 9 feet

23. A school project is located within one-half mile (800 meters) from a busy highway. Which of the following must be true for the project to earn LEED certification?
    A. The school is not eligible for LEED certification
    B. Projects should implement acoustic treatment and other measures to minimize noise intrusion If peak-hour Leq measurements exceed 60 dBA
    C. Projects should implement acoustic treatment and other measures to minimize noise intrusion
    D. The school project is exempt from this prerequisite

24. A residential project located in EPA Radon Zone 1 must take which of the following actions to satisfy the requirements for EA Prerequisite Minimum IAQ Performance? (Choose 3)
    A. Install a CO2 sensor in all rooms
    B. Design and construct any dwelling unit on levels one through four above grade with radon-resistant construction techniques.
    C. Design and construct all dwelling units with radon-resistant construction techniques.
    D. Carbon monoxide monitors must be installed on each floor
    E. Not allow unvented combustion appliances in the building
    F. Carbon monoxide monitors must be installed on each floor of each unit

25. A hotel project with an atrium is planning to pursue EA credit Quality Views. Which of the following would you recommend the project team to earn the credit? (Choose 3)
    A. Include gymnasiums for the view requirements
    B. Utilize multiple lines of sight to vision glazing in different directions at least 60 degrees apart;
    C. Use the reference standard Windows and Offices: A Study of Office Worker Performance and the Indoor Environment
    D. Exclude Conference rooms with video conferencing, Gymnasiums from view requirements
    E. Include views with a view factor of 2 or greater
    F. Utilize views into interior atria to meet up to 100% of the required area
    G. Utilize views into interior atria to meet up to 30% of the required area

26. A healthcare project with mechanical ventilation is implementing interior cross- contamination prevention, filtration and adding an entry way system. Which of the following must a healthcare project do in addition to the entryway systems to earn EA Credit Enhanced Indoor Air Quality Strategies using Option 1. Enhanced IAQ Strategies?
    A. Provide pressurized entryway vestibules at high-volume building entrances
    B. Provide natural ventilation design calculations
    C. Provide additional entryway systems between spaces
    D. Provide increased ventilation to all occupied spaces

27. Which of the following are acceptable glare control devises for EA Credit Daylight? (Choose 3)
    A. Movable awnings
    B. Fritted glazing
    C. Fixed louvres
    D. Curtains
    E. Darkly colored glazing
    F. Interior shades

28. Which of the following are requirements for EA credit interior lighting - option 1 - lighting controls? (Choose 2)
    A. For at least 90% of individual occupant spaces, provide individual lighting controls with at least two lighting levels or scenes (on, off)
    B. Projects should provide individual lighting controls that enable occupants to adjust the lighting to suit their individual tasks and performance for at least 75% of individual occupant spaces
    C. For at least 90% of individual occupant spaces, provide individual lighting controls with at least three lighting levels or scenes (on, off, mid level)
    D. Projects should provide individual lighting controls that enable occupants to adjust the lighting to suit their individual tasks and performance for at least 90% of individual occupant spaces

29. A whole building energy simulation resulted in a baseline building performance of $100,000 for a new construction project. What minimum improvement in building performance is needed for LEED certification?
    A. $5,000
    B. $12,0 00
    C. $6,000
    D. $4,000

30. A New Construction project is utilizing electricity generated from a community solar garden to offset some of the energy use from fossil fuels and thereby earn EA credit Renewable Energy Production. Which of the following are required to be submitted as part of credit documentation? (Choose 3)
    A. Contract indicating duration
    B. Documentation indicating distance of the project from the community garden
    C. Copy of Green-e-certified RECs
    D. Photographs of the community solar garden
    E. Calculations to determine energy generated and equivalent cost
    F. Documentation indicating percentage owned or leased of community system

31. Who will be responsible for updating the Basis of Design(BOD) document in an event when project requirements are changed and thereby design changes are made?
    A. The design team
    B. Architect
    C. The architect(s)
    D. The owner(s)
    E. The CxA

32. A project is planning how to respond to a DR event. Which of the following DR management strategies are eligible for EA Credit Demand Response? (Choose 2)
    A. Manual Demand Response to a DR event with no Energy Management System
    B. Fully automated demand response to a DR event with an Energy Management System and BAS control sequence initiates strategy, without human intervention
    C. Semiautomated demand response to a DR event with an Energy Management System and DR coordinator initiates control strategy programmed into BAS
    D. Manual Demand Response to a DR event with no Energy Management System and Building operator manually turnoff end-use systems

33. The project owner has designated the CXA to perform BECx. To complete BECx , the CxA should have access to which of the following equipment?(Choose 3)
    A. Cx report
    B. OPR, BOD and Construction Documents
    C. Infrared camera
    D. Blower door assembly
    E. Water bottle

34. A project is located in an area where DR programs are not currently offered through the utility company. Which of the following actions should the project team take if attempting EA Credit Demand Response? (Choose 3)
    A. Participate in a DR program for at least 1 year with intention for multi-year renewal for at least 10% of the estimated peak electricity demand
    B. Provide infrastructure to take advantage of future demand response programs or dynamic, real-time pricing programs
    C. Install interval recording meters with communications and ability for the building automation system to accept an external price or control signal.
    D. Prepare a plan to install interval recording meters with communications in the future when the DR program becomes available
    E. Develop a comprehensive plan for shedding at least 10% of building estimated peak electricity demand

35. A LEED BD+C Project after completion is implementing MBCx as part of the enhanced commissioning requirements. One year after certification, the project is planning to pursue LEED O+M certification. Which of the following is TRUE for this project when applying for LEED O+M certification?
    A. The project team already meets the requirements of EA Credit Exis ting Building Commissioning, Implementation, and EA Credit Ongoing Commissioning
    B. A project certified under one rating system cannot be certified under another certification
    C. The project must wait for 24 months before applying for LEED O+M Certification
    D. The project team will find it easier to achieve the energy conservation tracking and measurement requirements of EA Credit Existing Building Commissioning, Implementation, and EA Credit Ongoing Commissioning

36. An office project in Denver, Colorado is planning to use on-site renewable energy to offset 15% of the building's energy cost as determined from energy simulation data used for EA Prerequisite Minimum Energy Performance. Using more than 12% Renewable Energy for a LEED projects is a regional priority credit in Denver, Colorado. How many total points can the project earn this design?
    A. A Total of 3 Points
    B. A Total of 5 Points including 2 points for exemplary performance (IN)
    C. A Total of 4 Points
    D. A Total of 5 Points including 1 point for exemplary performance (IN) and 1 point for Regional Priority (RP)
    E. A Total of 2 Points

37. The project team for a project is in the process calculating the LCODP: Lifecycle Ozone Depletion Potential and LCGWP: Lifecycle Direct Global Warming Potential. Which of the following values the team should assume for Lr: Refrigerant Leakage Rate, Mr: End-of- life Refrigerant Loss and Equipment Life? (Choose 3)
    A. Lr: Refrigerant Leakage Rate (2.0%)
    B. Equipment Life (20 years; default based on equipment type, unless otherwise demonstrated)
    C. Mr: End-of-life Refrigerant Loss (5%)
    D. Lr: Refrigerant Leakage Rate (5.0%)
    E. Equipment Life (10 years; default based on equipment type, unless otherwise demonstrated)
    F. Mr: End-of-life Refrigerant Loss (10%)

38. A project used prescriptive compliance path for EA Prerequisite Minimum Energy Performance. Which of the following resources can the project use to compute energy cost for EA Credit Renewable Energy Production?
    A. Work with utility company
    B. CBECs DATA
    C. Simple Box Energy Model
    D. Energy Modeling Results

39. A small office building is unable to perform energy simulation and decides to pursue the requirements of EA Prerequisite Minimum Energy Performance through option 3 - prescriptive compliance path using the Advanced Building Core Performance Guide. Which of the following must be true regarding the project in order to achieve LEED certification? (Choose 3)
    A. The project must analyze at least three alternative building configurations to maximize passive reduction of building energy loads
    B. The project have to meet the prescriptive requirements of ASHRAE 90.1-2010 for envelope, service water heating and lighting
    C. The project must develop a checklist of all the requirements needed to comply with the CPG, and include it in the OPR
    D. The project must use ASH RAE 50% Advanced Energy Design Guide (AEDG) for HVAC and service water-heating systems

40. The project team for a new office building plans to purchase 50% green power. However, an energy model was not done for EA Credit Optimize Energy Performance. What information is required when determining the quantity of RECs to purchase? (Choose 2)
    A. Total number of occupants
    B. Carbon emission data
    C. Energy Simulation Results
    D. Building type and area
    E. Climate zone data
    F. The CBECS data

41. The project owner has designated the LEED AP on the project to identify and make a recommendation to hire the Enhanced Commissioning Authority for a 100,000 sq. ft. office project. Which of the following restrictions apply to the CXA to qualify for the LEED EA credit Enhanced Commissioning? (Choose 2)
    A. Have building experience on at least 5 other building projects
    B. Not an employee or subcontractor of the general contractor or construction manager
    C. Not a member of the design team
    D. Not an employee or contractor of the owner

42. The total building annual energy cost as determined from energy simulation report for an office building is $50,000. The project's on-site renewable energy system will generate 100,000 kWh of electricity per year. If the virtual rate for the electricity generated is $0.07/kWh, what percentage of annual energy costs will be offset by the renewable energy produced from the on-site system?
    A. 28%
    B. 14%
    C. 20%
    D. 10%

43. Which of the following can help a CXA during the ten-month operation review for Enhanced Commissioning? (Choose 2)
    A. Energy Simulation Results from EA Prerequisite Minimum Energy Performance
    B. Simple Box Energy Model
    C. Gathering data from a building-level metering system?
    D. Interview with building occupants
    E. A DR Event

44. The project team for a Core and Shell project in the U.S plans to purchase 50% of energy through carbon offsets to pursue EA Credit Green Power and Carbon offsets. Which of the following information would be useful for the project to determine green power requirements? (Choose 2)
    A. The Core and Shell Floor area should not be less than 15% of the project's floor area
    B. The Core and Shell Floor area should not be less than 25% of the project's floor area
    C. Building Metering Data
    D. The project's energy usage as defined by Building Owners and Managers Association (BOMA) standards

45. Orienting a building to take advantage of natural shading features of the site are likely to have which results? (Choose 2)
    A. Make it harder to maintain the building
    B. Increase process loads
    C. Reduce cooling load requirements
    D. Increase energy load for electric al lighting

46. A new construction project will include a unique process resulting in non-regulated load savings. The project is using whole building energy simulation to earn EA Credit Optimize Energy Performance. Which of the following is true regarding how these savings can be documented and factored in using energy simulation?
    A. The savings do not have to be modeled and no documentation would be required
    B. The exceptional calculation method can be used to document savings
    C. The project should use Core Performance Guide to document the savings from non-regulated loads
    D. The project may submit a narrative explaining the strategy
    E. The project should use ASHRAE 50% AEDG to document this

47. How many RP Credits are identified for every location?
    A. 5
    B. 3
    C. 4
    D. 6

48. How many points can a project earn for RP credits?
    A. 3
    B. 4
    C. 6
    D. 5

49. Which of the following resources should be used to identify RP credits for a project
    A. LEED online RP credit library
    B. CIR
    C. USGBC website RP credit library
    D. RP Credits are automatically assigned at the time of project registration

50. What more should a project do to submit and document RP credits for LEED certification?
    A. No additional documentation is required to earn Regional Priority credits
    B. Projects should implement RP credit first and wait till project completion to document them
    C. Submit separate documentation through LEED online
    D. Submit with construction submittals

51. The LEED project boundary may not include land that is not owned by the project owner unless:
    A. The land is associated with the LEED project and supports it's normal building operations
    B. The land will be included in the next phase of LEED certification
    C. The land will be purchased by the project owner after project completion
    D. The land is part of a larger campus project such as school, university of military campus

52. A project is Seattle is analyzing various credits for exemplary performance. Which project strategy would earn an exemplary performance point under IN Credit Innovation Option 3 Additional Strategies?
    A. Locate 100% of parking under cover
    B. Manage 100% of rainwater that falls within the project boundary
    C. Locating the building's main entrance within 1/4-mile walking distance of ten or more diverse uses
    D. Designing and implementing a green education program
    E. Reducing Water Usage by 40% as compared to baseline

53. You are registering an office project in Hiawatha, Iowa under LEED BD+C rating system. Which of the following design decisions would you not recommend for LEED certification?
    A. The building will be three stories high
    B. The building will be located 75 feet away from a lake
    C. The new building is located on a camp us certified under a previous version of LEED
    D. One of the modular offices will be moved to another location after project completion
    E. The area of the building will be 1500 square feet
    F. The new building is located on a campus certified under LEED v4

54. A project team in Houston, Texas is preparing for a design charrette and a goal setting- workshop to identify and use opportunities to achieve synergies across disciplines and building systems as well as meet the requirements for IP Credit Integrative process. In addition, the project team performed various analyses to evaluate energy and water related systems for the project. Which of the following should the project team do to document for IP Credit Integrative Process?
    A. Perform a preliminary "simple box" energy modeling analysis
    B. Document how the analysis informed design and building form decisions in the project's OPR and BOD and the eventual design of the project
    C. Document the project schedule for energy and water systems
    D. Document the costs associated with Energy Modeling

55. Which of the following defines the LEED boundary for a single building development? (Choose 2)
    A. The entire project scope - generally limited to the site boundary
    B. The edge of the development footprint minus the building footprint
    C. The edge of the development footprint
    D. The portion of project site submitted for LEED certification
    E. The edge of the building footprint

56. A new Construction project was registered in December of 2013. In May,2014 USGBC published Addenda for a credit the project team is pursuing. What statements are true regarding this project? (Choose 2)?
    A. The project team must follow any addenda published in May, 2014
    B. Submit a CIR for clarification
    C. The project team can choose to follow any addenda published after May, 2014
    D. The project team can choose to follow any addenda published prior to December, 2013
    E. The project team must follow any addenda published prior to December, 2013

57. Which of the following special considerations would be part of the LEED project scope? (Choose 2)
    A. Energy Modeling of Energy and Water Systems
    B. A shared facility that may be used by the project occupants
    C. Bicycle Network and Green Vehicles
    D. Underground parking
    E. An off-site facility or amenity

58. Which of the following variables affect LEED Registration cost? (Choose 2)
    A. Substantial completion of the project
    B. Location of the Project - U.S. or Outside U.S
    C. Project's rating system
    D. Time when the project team decides to register
    E. Project's size

59. A project in Raleigh, North Carolina was originally registered under BD+C: New Construction. Later during the pre-design stage, the owner finds 3 tenants to occupy the building space upon completion and hence wants to change the rating system to Core and Shell. Which action should be taken by the project team?
    A. Contact LEED technical customer service
    B. Submit a project CIR
    C. Submit the issue via the feedback button within leedonline.com
    D. Submit a LEED interpretation

60. A LEED project integrated team is iteratively testing many strategies as part of pursuing LEED credit integrative process. Which of the following strategies is an example of an overlapping benefit that a project team might find during the ongoing discovery phase of energy and water systems?
    A. Utilizing waste heat from a mechanical system to heat hot water in the building
    B. Deciding to perform water budget
    C. Selecting one paint over another for aesthetic reasons
    D. Deciding to perform energy modeling
    E. Deciding to increase ventilation by 30% for the project

61. Which of the following apply to alternate water uses for projects pursuing WE Credit Outdoor Water Use Reduction? (Choose 2)
    A. Irrigation with saline water from condensate and cooling tower blowdown helps growth of plants
    B. Projects should be testing salinity of all alternate water sources before using for irrigation
    C. Irrigation with saline water in an arid environment causes salt buildup in the soil
    D. Projects should test site-derived alternative water to confirm its suitability for irrigation uses
    E. Projects may test site-derived alternative water to confirm its suitability for irrigation uses

62. A new construction school project persuing LEED gold certification decided to replace outdoor basketball courts with an athletic field covered in turf grass. What can be true with respect to this design change?
    A. The field would not contribute to SS Credit Master Plan
    B. The field cannot be included in the WE Credit Outdoor Water Use Reductions
    C. The field will require curfew timers for the lighting that shutoff no later than 10 p.m.
    D. The field may be included in the WE Credit Outdoor Water Use Reductions

63. As part of a strategy to reduce outdoor water use reduction, a project installs only irrigation controls whose smart-sensor technology meets the WaterSense criteria. What would be the final adjusted monthly landscape water requirement (LWR) of the project be for installing these controls in relation to WE Credit Outdoor Water Use Reduction?
    A. Prerequisite LWR is 50,000 gallons a month
    B. No additional % reduction
    C. 40,000 gallons
    D. 42,500 gallons
    E. 35,000 gallons

64. A new courthouse project in Austin, Texas has a baseline irrigation case use of 25,350 gallons of water. Included in the design case are shrubs, mixed vegetation, and turf. The project also has graywater harvesting system that will contribute 12,145 gallons available for irrigation in the month of July, 4,350 gallons in August and 8,855 gallons in September. In order to earn 2 points under WE Credit Outdoor Water Use Reduction, how many more gallons of water does the project need to save?
    A. 16,495 gallons
    B. 4,350 gallons
    C. 13,205 gallons
    D. 21, 000 gallons

65. A hospital project is proposing using alternate water sources for the cooling tower system. Which of the following would you recommend the project team to offset cooling tower makeup water?
    A. Stormwater runoff from the property grounds and graywater
    B. Air conditioning condensate and rainwater from building roofs
    C. Rainwater from building roofs and stormwater runoff from the property grounds
    D. Graywater and steam system condensate

66. Apart from required volume of makeup water, which of the following should be considered when using non-potable water sources by projects pursuing WE Credit Cooling Tower Water? (Choose 3)
    A. Any non-potable water source that is metered
    B. Sources with relatively low levels of dissolved so lids
    C. Sources with relatively low mineral content
    D. Ease of transport to the cooling tower
    E. Sources with relatively high levels of dissolved chlorides

67. Which of the following variables are required to determine the design case water use for outdoor water use reduction using the WaterSense Water Budget tool?
    A. Size of the landscape area
    B. Landscape area, rainfall data and evapotranspiration levels
    C. Evapotranspiration levels and smart scheduling technologies
    D. Size of the landscaped area and the sources of alternative water
    E. Sources of alternative water and each location's rainfall

68. A New Construction project planning for LEED certification should adhere by which of the following requirements for process water under WE Prerequisite Indoor Water Use Reduction?
    A. 30% from the calculated baseline for the site's annual use
    B. 35% from the calculated baseline for the site's annual use
    C. No once-through cooling with potable water for any equipment or appliances that reject heat
    D. 25% from the calculated baseline for the site's peak watering month

69. Under which of the following cases are projects required to perform Nonpotable water analysis for WE Credit Cooling Tower Water Use
    A. Projects pursuing exemplary performance for WE Credit Colling Tower Water Use
    B. Projects using 20% or more non-potable water are required to perform non-potable water analysis
    C. Projects using 100% non-potable water are only required to perform non-potable water analysis
    D. Projects using 50% or more non-potable water are required to perform non-potable water analysis
    E. All projects are required to perform potable and non-potable water analysis

70. Which of the following is true when calculating landscape water budget for WE Credit Outdoor Water Use Reduction for a project If only part of the lot is irrigated? (Choose 2)
    A. Complete the calculation once for the irrigated section only
    B. Projects may enter zero landscape water consumption for any landscaped area
    C. Carefully plan pervious and impervious hardscapes
    D. Complete the calculation twice-once for the irrigated section and again for the unirrigated area- and sum the results.
    E. Projects may not enter zero landscape water consumption for any landscaped area

71. A project team in Houston, Texas is scheduling to convene for a goal setting workshop in 2 weeks. Which of the following should occur prior to the goal setting workshop to successfully implement IP Credit Integrative process? (Choose 2)
    A. Conduct preliminary comparative energy modeling
    B. Conduct a preliminary water budget analysis
    C. Evaluate possible energy strategies
    D. Conduct a preliminary water and energy research and analysis

72. Which of the following factors is a fundamental evaluation criterion for the prerequisite Integrative Project Planning and Design?
    A. Human health
    B. Sensitive land
    C. Cost-effective adoption of green design and construction strategies
    D. Strategies that have a bigger impact on project energy usage

73. A project pursuing LEED certification is getting ready for a goal-setting workshop. Which of the following should be the action items for the goal-setting workshop? (Choose 3)
    A. Collection of information about life cycle analysis of the building design
    B. Hearing from community representatives
    C. Setting a target certification level
    D. Assigning responsibilities
    E. Engagement of the owner and prima ry project team
    F. Create building operations training

74. As part of performing a simple box energy model, which of the following aspects must be considered to earn Integrative Process credit?
    A. Thermal comfort ranges, plug and process loads, and off-site parking
    B. Site conditions, massing and orientation, building envelope attributes
    C. Building envelope attributes, programmatic and operational parameters, and acoustics
    D. Lighting levels, indoor water-use demand, and proximity to public transportation

75. Which of the following factors are taken into account while performing a water budget under discovery phase - water related systems? (Choose 3)
    A. Process water demand
    B. The on -site supply sources
    C. Metering indoor and outdoor water
    D. Understand demand response
    E. Indoor and outdoor water demand

76. A healthcare project in Houston is assembling an integrative design team. Who among the following must be included in the integrative design team apart from the Owner, Designer and Builder? (Choose 2)
    A. Project Manager
    B. Landscape Architect
    C. Healthcare Facility Staff
    D. Healthcare Equipment Vendor
    E. Product Manufacturer
    F. Construction Manager

77. Which action does a project team need to take in the discovery phase for water-related systems to earn IP Credit Integrative Process?
    A. Identify at least one on-site, non-potable water source that could supply a portion of at least two demand components
    B. Quantify Outdoor Water Use Reduction
    C. Quantify Indoor and Outdoor Water Use Reduction
    D. Quantify Indoor Water Use Reduction

78. Which of the following data should be collected as part of discovery - preliminary data collection? (Choose 3)
    A. Location (distance from site), capacity, and type and level of treatment for the sewage system serving the site
    B. Indoor water demand
    C. Location, capacity, and type of water sources serving the site, such as reservoirs, aquifers, wells, lakes, etc.
    D. Outdoor water demand
    E. Microclimate, utility providers, and potential financial incentives

79. Which of the following should the project team need to document from the integrative charrette for IP Prerequisite Integrative Project Planning and Design? (Choose 2)
    A. Quality pledge from the design charette
    B. Narrative explaining how the health mission statement addresses the credit requirements
    C. Roster of attendees from the integrative design charette
    D. Narrative describing how the budget and schedule impacted the credits selected and who is responsible for each credit
    E. Action plan from preliminary rating goals

80. Which of the following tools will assist the project team when conducting a preliminary energy research and analysis for Integrative Process credit?
    A. eQuest
    B. Simple Energy Model
    C. ANSI Consensus National Standard Guide© 2.0 for Design and Construction of Sustainable Buildings and Communities
    D. U.S. EPA Target Finder

81. A project is pursuing SS credit Reduced Parking Foot Print. In addition, if the project reduced the building foot print, which other credits might this help?
    A. L T Credit Surrounding Density and Diverse Uses
    B. LT Credit High-Priority Site
    C. LT Credit Access to Quality Transit
    D. LT Credit Sensitive Land Protect ion

82. A school project is providing 5% preferred parking for green vehicles. The project is also installing electrical vehicle supply equipment (EVSE) in 2% of all parking spaces used by the project to earn LT Credit Green Vehicles. In addition, the project must do which of the following to earn LT Credit Green Vehicles?
    A. Develop and implement a plan for 100% of all other (non-bus) vehicles owned or leased to serve the school to be green vehicles
    B. Develop and implement a plan for every bus serving the school to meet emissions standards per credit requirements within five years of the building certificate of occupancy
    C. Develop and implement a plan for every bus serving the school to meet emissions standards per credit requirements within seven years of the building certificate of occupancy
    D. Nothing

83. A school project is attempting to earn LT credit surrounding density and diversity uses through option 2 (diversity uses). Which of the following types of spaces are NOT included when discussing diverse uses on a school project? (Choose 3)
    A. Parking Area for Low-e vehicles
    B. Playing Fields
    C. Concession Stands
    D. Physical Education Spaces that are part of the project site
    E. Bicycle Parking Area

84. A project located in downtown Seattle is pursuing LT Credit Reduced Parking Footprint. The project was able to reduce parking capacity by 40% (since the project would earn 1 point under LT Credit Access to Quality Transit) in addition to providing 5% preferred parking for carpools. As a LEED AP on the project, which among the following measures are required to document the credit via LEED online? (Choose 3)
    A. Calculations demonstrating threshold achievement
    B. Site plan indicating parking areas and preferred parking spaces
    C. Documentation showing compliance of LT Credit Access to Quality Transit
    D. Vicinity Map of the Project Showing Public Transportation Access
    E. Drawings or photographs of signage or pavement markings indicating reserved status of preferred parking areas

85. Which among the following sites will qualify for Priority Designation under option 2 for LT Credit High Priority Site? (Choose 3)
    A. A Department of the Treasury Community Development Financial Institutions Fund Qualified Low-lncome Community
    B. A site listed by the EPA National Priorities List
    C. A Federal Empowerment Zone site
    D. A Federal Renewal Community site
    E. A Federal Brownfield site

86. A project is unable to designate 5% of all parking spaces used by the project as preferred parking for green vehicles. Which of the following is an acceptable substitute for preferred parking spaces?
    A. A discounted parking rate of at least 20% for green vehicles - permanently available to every qualifying vehicle.
    B. A discounted parking rate of at least 30% for green vehicles
    C. A discounted parking rate of at least 20% for green vehicles
    D. A discounted parking rate of at least 30% for green vehicles - permanently available to every qualifying vehicle.

87. The project team designs the development footprint such that it does not overlap with the sensitive habitat area and is not within 50 feet (15 meters) of the wetland. The project team provides an impervious pedestrian pathway within the wetland buffer that meets the credit requirements. Which of the following credits might the project earn? Choose 3)
    A. LT Credit LEED for Neighborhood Development Location
    B. LT Credit Sensitive Land Protection
    C. LT Credit Reduced Parking Footprint.
    D. SS Credit Site Development- Protect or Restore Habitat
    E. SS Credit Site Assessment

88. A project pursuing LT credit Sensitive land Protection using option 2 has decided to leave the previously undeveloped land on the project as undisturbed. Which of the following credits may the project earn by doing this? (Choose 2)
    A. LT Credit High-Priority Site
    B. Location and Transportation Credit Green Vehicles
    C. SS Credit Site Development- Protect or Restore Habitat
    D. SS Cred it Rainwater Management

89. A residential project with 100 regular occupants and 50 units is planning bicycle storage spaces as part of meeting the requirement for LT credit Bicycle Facilities. What is the minimum number of long term bicycle storage spaces that the project should provide in order to earn the credit?
    A. 100
    B. 50
    C. 30
    D. 25

90. Which of the following is TRUE regarding brownfield remediation and LT credit Sensitive Land Protection - Minor improvements within the wetland and water body buffers?
    A. Brownfield remediation activities are NOT considered minor improvements within the wetland and water body buffers
    B. None of the above
    C. Brownfield remediation activities are NOT part of LT credit Sensitive Land Protection but LT credit High Priority Site
    D. Brownfield remediation activities are considered minor improvements within the wetland and water body buffers

91. A LEED AP is performing calculations for SS Credit Heat Island reduction using Option 1 - Non-Roof and Roof. Which of the following must be true for the calculation total qualifying Non-Roof and Roof area per the calculation?
    A. Equal to Project's Total Non-Roof + Total Roof Area
    B. Greater than or Equal to Project's Total Non-Roof + Total Roof Area
    C. Equal to Project's Total Site Area + Total Roof Area
    D. Greater than or Equal to Project's Total Site Paving Area +Total Roof Area

92. A project lighting team is developing a photometric site plan to calculate light trespass, using lighting design software. The team is setting a vertical calculation grid at each segment of the project's lighting boundary and the extent of the lighting zone allowances. Which of the following must be true of the vertical illuminance calculation points? (Choose 2)
    A. The vertical illuminance calculation points must extend from grade level up to at least 33 feet (10 meters) above the tallest luminaire in the project
    B. The vertical illuminance calculation points must be no more than 10 feet (3 meters) apart
    C. The vertical illuminance calculation points must be no more than 5 feet (1.5 meters) apart
    D. The vertical illuminance calculation points must extend from grade level up to at least 66 feet (20 meters) above the tallest luminaire in the project

93. A project team for a LEED school project is collaborating with the school authorities and external agencies to ensure access to an outside swimming pool and stadium for the students. What else should the project team do to earn SS Credit Joint Use of Facilities using option 3? (Choose 2)
    A. Provide direct pedestrian access to these spaces from the school
    B. Provide a shuttle service to these spaces from the school
    C. Provide access to toilets in joint-use areas after normal school hours.
    D. Provide access to another space such as an auditorium
    E. Provide signed joint-use agreements with the other organizations or agencies that stipulate how these spaces will be shared

94. A project in downtown Los Angeles is considering SS Credit Heat Island Reduction. The Project has both steep- sloped roofs as well as low- sloped roofs. Which of the following high reflectance roofing materials are acceptable to meet the credit requirements? (Choose 2)
    A. Steep-sloped roof - Initial SRI 38, 3-year aged SRI 32
    B. Low-sloped roof - Initial SRI 82, 3-year aged SRI 64
    C. Steep-sloped roof - Initial SRI 39, 3-yea r aged SRI 32
    D. Low-sloped roof - Initial SRI 79, 3-year aged SRI 55

95. A BD+C project that has already started construction has decided to go for LEED certification. They are deciding on what must be done to reduce pollution from construction activities to comply with SS Prerequisite 1 - Construction Activity Pollution Prevention. Which among the following is true regarding this project's chance of earning LEED certification?
    A. The project can implement a ESC plan for the reminder of the project and still meet the requirements of the prerequisite and earn LEED certification
    B. The project must have had a compliant ESC plan in place before construction began to meet the prerequisite requirements
    C. It's too late for the project to earn the prerequisite
    D. None of the above

96. A project design includes wetlands, naturally designed ponds and natural areas for more than 30% of the project site area. The team also included features such as educational signage, walking trails, and observation stations. What else should the project team do to earn SS Credit Open Space? (Choose 2)
    A. Wetlands or naturally designed ponds are vegetated
    B. The side slope gradients average 1:4 (vertical:horizontal) or less
    C. An additional garden space dedicated to community gardens
    D. Wetlands or naturally designed ponds are pervious
    E. The side slope gradients average 1:4 (vertical:horizontal) or more

97. Determine required outdoor area for a healthcare project pursuing SS Credit Direct Exterior Access? The peak number of inpatients and peak number of qualifying outpatients are 100 and 200 respectively.
    A. 1500 Square Feet
    B. 1200 Square Feet
    C. 1000 Square Feet
    D. 1125 Square Feet

98. Which of the following is true for a project if it is located on a site that has already been completely assessed and remediated with respect to earning SS Credit High Priority Site under Option 3 Brownfield Remediation?
    A. The results of the assessment and remediation may be used toward credit achievement if complete documentation is provided
    B. The project should consult local records, or conduct a Phase 1 or Phase 2 environmental site to confirm remediation
    C. The results of the assessment and remediation should be confirmed by a biologist or environmental scientist
    D. The project cannot earn the credit since it didn't pay for the remediation
    E. The project cannot earn the credit since it was already remediated before LEED Project registration

99. A community center is being built on a graded site in an urban area with a zero-lot line. Because of the space limitation, it is proposed to have a vegetated roof with diverse native and adaptive plants. The average density within 1/4 mile of the project is 33,157 SF /acre. The total building area is 15,000 SF and total site area is 10,000 SF. The proposed vegetated roof is 5,000 SF. Given the above information what credit(s) can the project earn?
    A. SS Credit Site Development- Protect or Restore Habitat
    B. LT Credit Surrounding Density and Diverse Uses and SS Credit Site Development- Protect or Restore Habitat
    C. SS Credit Open Space
    D. LT Credit Surrounding Density and Diverse Uses
    E. LT Credit Surrounding Density and Diverse Uses and SS Credit Open Space

100. Which of the following actions should a project team take if some of the luminaires do not have BUG ratings in order to earn SS Credit Light Pollution Reduction?
    A. Request the vendor to get BUG rating
    B. Find comparable luminaires and use their BUG ratings as a substitute
    C. Exclude the luminaires that does not have BUG ratings from the credit documentation
    D. Use software to calculate the BUG rating for the luminaires that don't have ratings
    E. Use the calculation method