SCAFFOLD & ACCESS INDUSTRY ASSOCIATION

SAIA UNIVERSITY

COMPETENT PERSON TRAINING: SUSPENDED SCAFFOLD

Exam Version: A

INSTRUCTIONS:

- Print your name on the Scantron sheet in spaces provided
- Darken in the letters corresponding to your name on the Scantron sheet
- Darken in the test version in the Test Form section
- Record all answers on the provided Scantron sheet
- Return Scantron sheet and exam to instructor when finished

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1. What prevents an outrigger beam from being pulled off the roof?
   A. Fulcrum
   B. Tie back
   C. Outreach
   D. Cornice hook
   E. Beam length

2. Which of the following is an example of a back-up safety system for workers on suspended scaffolds?
   A. Suitable guardrails
   B. Multi-strand wire ropes
   C. Fall arrest equipment
   D. Tie-back cable
   E. Support beam counterweights

3. Which of the following best defines a suspended scaffold?
   A. Work platform on a high-rise building
   B. Work platform supported by a wire rope or wire ropes
   C. Any type of aerial work platforms
   D. Any scaffold that can be raised or lowered
   E. A scaffold system for reaching high places

4. The lanyard is part of which system?
   A. Support System
   B. Non-Engineered support system
   C. Fall arrest system
   D. Guardrail system
   E. Suspended system

5. Which Suspended Scaffold system is a Davit part of?
   A. Support System
   B. Non-Engineered support system
   C. Fall arrest system
   D. Guardrail system
   E. Suspended system

6. Which of the following is a part of the fall arrest system?
   A. Tie-back
   B. Tie-off anchor or anchor point
   C. Counterweight
   D. Suspended system
   E. Wire rope

7. How would a rolling roof rig be classified?
   A. As part of a temporary support system
   B. As part of a permanent support system
   C. As part of a davit support system
   D. A support system without tie-back requirements
   E. A support for fall arrest system

8. What is the minimum safety factor for all portable support system?
   A. 1
   B. 2
   C. 3
   D. 4
   E. 6

9. What is the name of the suspended scaffold support that projects beyond the face of a structure?
   A. Tension beam
   B. Compression beam
   C. Structural beam
   D. Outrigger beam
   E. Outboard beam

10. For the examples below, which would **NOT** be considered as part of the suspended system?
   A. Rollers
   B. Counterweights
   C. Workers
   D. Hoists
   E. Wire ropes

11. What is the name of the support system part that supports an outrigger beam close to the edge of a building roof?
   A. Tie down
   B. Tie back
   C. Counterweight
   D. Outreach
   E. Fulcrum

12. Why might it be necessary to use two tie-back ropes?
   A. Whenever a transportable system is used
   B. Where the tie-backs are also tie-downs
   C. When there is a danger of cross winds
   D. If a single rope cannot extend straight back
   E. If the counterweights are not suitable

13. What protects against an electrical overload?
    A. Circuit breaker
    B. Ground
    C. Three prong connection
    D. Short cord
    E. Wire gauge

14. How does a G.F.C.I. protect an electrical circuit?
    A. Breaks the circuit if the ground wire is disconnected or interrupted
    B. Breaks the circuit if the hot wire charge is greater than the neutral wire charge
    C. Breaks the circuit if the neutral wire charge is greater than the hot wire charge
    D. Breaks the circuit if the main electrical fuse panel is not grounded properly
    E. Breaks the circuit if there is any moisture close to the connected device

15. Besides reducing the load on an electrical circuit, what is one of the ways in which to deal with a situation where voltage is low?
    A. Use a lighter gauge cord
    B. Use a short a cord as possible
    C. Use a long a cord as possible
    D. Provide additional grounding
    E. Use variable speed devices

16. How do you avoid side loading on two-point suspended scaffold equipment?
    A. Having the outrigger tie-back ropes attached to the inboard ends
    B. Placing two outrigger tie-back ropes at an angle on each inboard end
    C. Locating the stirrups on the work platform close to the ends
    D. Keeping hoist to hoist and outrigger to outrigger spacing the same
    E. Anchoring the outrigger inboard ends directly to the structure

17. If a walk-through stirrup is placed 4 feet from the end of a work platform, what protection is required for the workers?
    A. Hoists must be the drum type
    B. Hoists must be equipped with grab bars
    C. The platform must be suitably reinforced
    D. Workers must be equipped with hard hats
    E. End guardrails must be installed

18. What is modular staging?
    A. A standard width, length, and height work platforms
    B. Work platform units that can be joined end to end
    C. A special type of work cage that accommodates two workers
    D. A type of work platform that has multiple levels
    E. A platform that only allows the hoists to be attached at the very end

19. What is one of the things you would find on an electrical hoist motor label?
    A. Load Rating of the hoist
    B. Minimum cord gauge
    C. Minimum voltage required
    D. Minimum ground required
    E. Motor phase time

20. Which of the following is critical for workers to determine regarding the choice of work platform?
    A. The load capacity of the platform
    B. The length of the platform
    C. Type of material used on the platform
    D. How long the platform has been in use
    E. The manufacturer of the platform

21. Where are roller bumpers located?
    A. Between the wire rope and the structure
    B. Between the platform and the structure
    C. On the outer edge of the platform
    D. On the underside of the platform
    E. On each end of the platform

22. Air-operated hoist motor labels will provide which of the following information
    A. Minimum amount of oil required
    B. Amount of air pressure required
    C. Amount of amps required
    D. Amount of volts required
    E. Minimum hose length allowed

23. What additional steps must be taken if people can pass below a suspended scaffold?
    A. Double wire rope rigging
    B. Warning signs on the scaffold
    C. Lifelines must be coiled
    D. Installation of guard rail mesh
    E. Tools are not allowed on the platform

24. Which of the following is an example of a multi-tier scaffold?
    A. Work platforms that have steps from one level to another
    B. Work platforms that are suspended on an angle
    C. Work platforms suspended on four ropes
    D. Work platforms suspended one above another
    E. Work platforms suspended side by side

25. On a hoist rated load label, what is one of the things you should find?
    A. Manufacturer's address
    B. Minimum support load rating
    C. Most recent inspection
    D. Maximum safe lifting capacity
    E. Minimum required lifting capacity

26. What is the function of the main mast that protrudes over a single-point basket?
    A. It keeps the basket stable
    B. It directs the lifeline upward
    C. It controls the hoist operation
    D. It is a place for tools
    E. It acts like a guardrail

27. Where would you expect to find the travel speed of a hoist?
    A. Electric hoist motor
    B. Hoist label
    C. Support equipment rated load label
    D. Scaffold warning label
    E. Roof mounted support system

28. When working on a single-point basket, what is one of the safety precautions that must be taken?
    A. Use a special personal safety device
    B. Use an oversized suspension rope
    C. Position the rope guide directly above you
    D. Have a means to communicate with others
    E. Always work from the bottom up

29. What is the function of a strain relief on an electrical cord?
    A. It ensures constant voltage flow to the motor
    B. It takes the tension where two cords are joined
    C. It locks a plug and socket together
    D. It cushions the shock of a sudden stop
    E. It allows flexibility in a horizontal movement

30. What is the purpose of overload switches as found on hoist motors?
    A. To interrupt the current if the hoist overheats
    B. To interrupt the current if there is a power surge
    C. To stop the hoist if there is too much load
    D. To stop the hoist at any desired point
    E. To prevent the hoist in a sudden fall

31. What is one of the reasons for labeling rigging and supported equipment?
    A. To identify where the equipment can be used
    B. So users are assured of the safety factor
    C. So manufacturers are not liable
    D. So users will know which system is used
    E. To notify users of the load carrying capacity

32. Which of the following is true regarding a hoist motor as it starts to move the platform up?
    A. It requires more voltage than steady running
    B. It draws less amps than steady running
    C. It draws more amps that steady running
    D. It will likely produce a sudden jerk
    E. It will allow a drop before moving up

33. To overcome a hot running hoist due to low voltage, you can:
    A. Add additional power cord
    B. Add a transformer booster
    C. Replace the circuit breaker
    D. Remove the protective cover
    E. Clean all contact points

34. What type of suspended scaffold does not require guardrails on all open sides?
    A. There are none
    B. Single point
    C. Two point
    D. Bosun chair
    E. Aerial platform

35. Why should you use a heavy gauge electrical cord for hoist motors?
    A. To minimize current resistance
    B. So the cord is more rigid
    C. The insulation is thicker
    D. Both motors can be connected together
    E. Other devices can also be connected

36. What is the function of a controlled descent device?
    A. Allows platform to descend without power
    B. Maintains a constant descent with power
    C. Provides decent while engaging the brakes
    D. Ensures level descent for two-point systems
    E. Prevents automatic brakes from operating

37. Which of the following is common to all powered hoists?
    A. A single braking system
    B. A mechanism to increase torque
    C. Equipped with a transformer
    D. Requires 230-volt system
    E. Operate with low amps

38. Is it mandatory that workers using a suspended scaffold use fall arrest equipment?
    A. No
    B. Yes, in all cases
    C. Only on multi-tier scaffolds
    D. Only with single suspended systems
    E. Only on multiple suspended systems

39. To what does a 6 x 31 wire rope refer?
    A. The core is 6 gauge with 31 twisted strands around the core
    B. There are 6 core strands with each strand having 31 wires
    C. There are 6 strands around the core with each strand having 31 wires
    D. There are 31 strands made up of 6 wires each and twisted together
    E. The core is made up of 31 strands with each strand made up of 6 wires

40. What is one common feature of permanent suspended scaffold installations?
    A. Always for use in the outdoors
    B. Cannot be disassembled and stored
    C. Designed for only single point suspension
    D. Designed for use on a particular structure
    E. Designed for interchangeable components

41. What is meant by the term "rope lay"?
    A. It refers to the way the rope is coiled
    B. It refers to the twist of the rope to the right or left
    C. It refers to the flatness of the rope
    D. It refers to the device that holds it
    E. It refers to the stiffness of the rope

42. Is it acceptable to use threaded rod, cut to the proper length, as a bolt replacement?
    A. No, threaded rod cannot be used
    B. Yes, provided the nuts are graded
    C. Yes, but only for connecting stirrups
    D. Yes, but only with shackles
    E. Yes, if coarse threaded

43. How is the secondary brake on hoists activated?
    A. Anytime the hoist jerks
    B. Pressing the manual trip button or automatically if accelerations occurs
    C. Whenever there is a power interruption
    D. During a controlled descent
    E. If the platform is overloaded

44. When a fiber rope is knotted, how does it affect its strength?
    A. It does not affect the rope in any way
    B. Strength can be reduced by 10%
    C. Strength can be reduced by 25%
    D. Strength can be reduced by 50%
    E. Strength can be reduced by 75%

45. What special maintenance steps must be taken for permanent suspended scaffold installations?
    A. Inspections must be made annually
    B. Only operators are allowed to inspect
    C. Building owners are trained for maintenance
    D. OSHA inspectors do maintenance
    E. All servicing must take place on site

46. Based on regulations, what is the stall capacity of hoists?
    A. No more than two time the hoist rated load
    B. No more than three times the hoist rated load
    C. No more than four times the hoist rated load
    D. No more than five times the hoist rated load
    E. No more than six times the hoist rated load

47. Who is allowed to operate a permanent suspended scaffold installation system?
    A. Those who have at least 2 years' experience
    B. Those trained to operate the system
    C. Those who have prior use of the system
    D. Those who have signed a release statement
    E. Those with reputable past experience

48. When service technicians maintain hoists, to what source should they refer?
    A. Under Writers Laboratory
    B. Scaffold & Access Industry Association
    C. The manufacturer
    D. Local regulations
    E. Retail suppliers

49. What is the minimum number of lbs. of counterweight needed for a 16-ft. beam that has an outreach of 2 ft., a hoist of 1000 lbs. capacity if the counterweight center is located 12.5 feet from the fulcrum?
    A. 444.4 lbs.
    B. 500 lbs.
    C. 551.7 lbs.
    D. 640 lbs.
    E. 761.9 lbs.

50. What is the minimum number of lbs. of counterweight needed for a 12 ft. beam that has an outreach of 1.5 feet, a hoist with a 750 lb. capacity if the counterweight center is located 8.5 feet from the fulcrum?
    A. 450 lbs.
    B. 529.4 lbs.
    C. 600 lbs.
    D. 642.9 lbs.
    E. 692.3 lbs.

51. What is the recommended type of wire rope clamp?
    A. U-bolt
    B. J-bolt
    C. Machine bolt
    D. Carriage bolt
    E. Shackle bolt

52. On two-point suspended work platforms, how is the platform kept level?
    A. Locate the stirrups on the platform ends
    B. Maintain equal spacing of the stirrups
    C. Place support systems equal to hoist spacing
    D. Both hoists must operate simultaneously
    E. Ensure both shackles are the same

53. When a wire rope is terminated, what is the minimum number of clamps that must be used?
    A. 1
    B. 2
    C. 3
    D. 4
    E. 5

54. Which of the following would require a wire rope to be discarded?
    A. Evidence of bird caging
    B. The core is made of fiber
    C. Strands are tightly wrapped
    D. It has been in use too long
    E. Whenever it has been coiled

55. What is the minimum number of lbs. of counterweight needed for an 18 ft. beam that has an outreach of 2.5 feet, a hoist with a 1,000 lb. capacity if the counterweight center is located 14 ft. from the fulcrum?
    A. 714.3 lbs.
    B. 740.7 lbs.
    C. 769.2 lbs.
    D. 800 lbs.
    E. 833.3 lbs.

56. Which wire ropes must be used for suspended scaffolds?
    A. IWRC rope
    B. Fiber core rope
    C. Rope that is made with improved plow steel
    D. The rope required by the regulatory bodies
    E. The rope recommended by the hoist manufacturer

57. From what source can you easily find the load capacity of a particular suspended scaffold hoist?
    A. Label on the hoist housing
    B. Label attached to the work platform
    C. Consulting the structure owner
    D. Consulting regulatory officials
    E. The SAIA handbook

58. What is the purpose of a yoke?
    A. To transfer platform load to the hoists
    B. To balance the platform load
    C. To act as a guardrail system
    D. To split one power cord for two hoists
    E. To allow two life lines to be joined

59. If tie-back ropes are used with transportable support system, what is one of the requirements?
    A. They are taut
    B. They are loose
    C. They are short
    D. They are single strand
    E. Two are always used

60. Which of the following conditions would necessitate the replacement of a wire rope used with suspended scaffolds?
    A. Used more than five times
    B. Used more than ten times
    C. It was exposed to the weather
    D. There is a kink in the rope
    E. Bending becomes difficult

61. What is the purpose of the fulcrum?
    A. It provides an anchor point for the fall arrest system
    B. It distributes all loads to a greater area for support safety
    C. It provides tie-down needed to anchor the outrigger(s)
    D. It prevents the outrigger(s) from horizontal movement
    E. It transfers loads from the suspended scaffold to the structure

62. Why must the spacing between supported systems be equal to the spacing between work platform hoists?
    A. So the hoists work easier
    B. To avoid side loading
    C. To prevent tipping
    D. To avoid tie-downs
    E. For uniform lifting

63. Which of the following is one of the safety checks for a suspended scaffold platform?
    A. Stirrups are directly on the ends
    B. Stirrups allow walk-through
    C. Deck is coated for slip resistance
    D. Guardrails on all open sides
    E. Hoists anchor directly to platform

64. What is one of the hazards if arc welding is being done on a suspended scaffold?
    A. Grounding path may be through the support system
    B. Electrical energy may not be sufficient for the hoists
    C. Sparks could start the platform on fire
    D. The action could cause the platform to swing outwards
    E. Welding flux can damage the platform

65. What is an outrigger "outreach"?
    A. Distance between the counterweight and rope anchor
    B. Distance between the counterweight and fulcrum
    C. Distance between the rope anchor and the building
    D. Distance between the fulcrum and rope anchor
    E. Distance between the fulcrum and the building

66. What is recommended for suspended scaffold wire rope when arc welding is to be done?
    A. Make certain it is grounded to the building
    B. Have the wire rope grounded to the welder
    C. Use a rope coil resting on the ground
    D. Insulate it from the ground and the building
    E. Use the loose end as a tie back

67. If the suspended scaffold is ground-rigged, how is it recommended you load test it?
    A. Load the platform and raise it to the roof to check the rigging
    B. Use a remote control to fully raise and lower the platform
    C. Have another person check the roof rigging at the same time you raise it
    D. First check the roof rigging, then fully load the platform
    E. Raise the platform slightly, and over-load the platform 50%

68. What is one of the advantages of thermal overload switches in electrical motors?
    A. They can be re-set multiple times
    B. Less chance of damage by overheating
    C. Less demand on the circuit breakers
    D. They allow more voltage to flow through
    E. They prevent a short circuit due to grounding

69. What is the main consideration when using a parapet clamp to support a suspended scaffold?
    A. The parapet clamp is adjustable
    B. The arm reach is 4 ft.
    C. The wire rope is tied back
    D. The parapet is high enough
    E. The parapet is strong enough

70. What determines the position of a suspended scaffold work platform in relation to a work surface?
    A. Hoist position
    B. Platform width
    C. Stirrup size
    D. Beam outreach
    E. Type of fulcrum

71. What are the three critical parts of a fall arrest system?
    A. Wire rope; support system; suspended system
    B. Body restraint, wire rope, and support system
    C. Anchorage, body restraint, and suspended system
    D. Connection, anchorage, and body restraint
    E. Back-up system, body restraint, and anchorage

72. What device allows the connection between the body harness and the lifeline to have freedom of movement as the suspended platform moves up and down?
    A. The stirrups
    B. The drum roller
    C. The "D" ring
    D. The lanyard
    E. The rope grab

73. Which of the following is a requirement of lifelines?
    A. They must be continuous from anchor to ground
    B. They must have seamless splice connections
    C. They must be at least 5/16 inch in diameter
    D. They must be made to hold at least 4,500 pounds
    E. They must be tightly coiled while on the platform

74. What special precautions should you take when operating an electrically operated suspended scaffold over water?
    A. Prevent the ropes and cables from touching the water
    B. Ensure the ropes and cables are properly grounded
    C. Have the ropes and cables coated with water repellant
    D. Use the water as a ground for all electrical cables
    E. Do not allow any welding to take place on the platform

75. Which of the following is a correct statement regarding the use of fall arrest systems?
    A. Connect yourself after entering the platform
    B. Check the components as you enter the platform
    C. Disconnect the rope grab as you ascend
    D. Use the longest lanyard that is available
    E. Disconnect yourself after leaving the platform

76. What minimum force must a lifeline anchor hold?
    A. 1000 lbs.
    B. 2500 lbs.
    C. 3000 lbs.
    D. 4500 lbs.
    E. 5000 lbs.

77. Which of the following is a true statement regarding fall arrest equipment?
    A. The length of lanyard is dependent on your body weight
    B. Rope grabs must be disengaged when moving the platform
    C. The best type of rope grab is one that uses a cam mechanism
    D. The chance of injury is directly related to how far you fall
    E. Lifelines are all made of the same materials and the same diameter

78. Which of the following is one of the reasons why an air-operated hoist has an advantage over an electrical hoist?
    A. They require very little maintenance attention
    B. They have a very low torque ratio
    C. All air-operated hoist components are interchangeable
    D. They can be used in a potentially explosive location
    E. They are quieter

79. What is the recommended way to prevent rollout when using personal safety devices?
    A. Using a shock absorbing lanyard directly attached
    B. Using double locking snap hooks with lanyards
    C. Using a rope grab equipped with an eyebolt
    D. Keeping the rope grab as high above you as possible
    E. Keeping a lanyard D-ring at the middle of your back

80. Which of the following is part of the fall arrest system?
    A. Tie-back
    B. Tie-off anchor
    C. Counterweight
    D. Suspended System
    E. Wire rope

81. What is the recommended type of lanyard that workers should use?
    A. A lanyard that connects easily
    B. A very short lanyard
    C. As long a lanyard as possible
    D. A shock absorber lanyard
    E. A lanyard with single locking hooks

82. When choosing a lifeline, what is the major consideration?
    A. It must be at least 5/8 inch in diameter
    B. It must support at least 4,000 lbs.
    C. The core must be made of steel strands
    D. It must be compatible with the rope grab
    E. The rope cannot have any stretch capabilities

83. If the fall arrest anchor fails, what back-up safety do you have if there is an accident?
    A. You don't have any back-up system
    B. Your connections to the platform
    C. Your personal communication device
    D. Your secondary lifeline system
    E. Your ability to react quickly

84. Why is it mandatory that workers on suspended scaffolds use a full body harness?
    A. It is the most economical choice of any body restraint
    B. It is required by regulation unless other types are authorized
    C. It spreads a fall impact to the different parts of the body
    D. It prevents a pendulum motion in case a worker falls
    E. It is much stronger than any of the other body restraint types

85. When the fall arrest rope grab is attached to a lifeline, which of the following is the most important consideration?
    A. Make sure that the lifeline is a taut as possible
    B. Always keep the lanyard as taut as possible
    C. Locate it at shoulder height or higher to limit the fall
    D. Attach is below shoulder height
    E. The rope grab is easily disengaged

86. What is the required safety factor for wire rope in the United States of America?
    A. 2:1
    B. 4:1
    C. 1:4
    D. 1:6
    E. 6:1

87. Which of the following is critically important to know about a hoist?
    A. Height restriction
    B. Rated load capacity
    C. Speed capability
    D. Weight of hoist
    E. Drum diameter

88. Where are stirrups located?
    A. Between the fall arrest system and worker
    B. Between the wire rope and support system
    C. Between the hoist and wire rope
    D. Between the hoist and work platform
    E. Between the hoist and guardrail system

89. What are the two types of hoists that are commonly used with suspended scaffolds?
    A. Spool and spring
    B. Screw and drum
    C. Traction and screw
    D. Drum and traction
    E. Drum and friction grip

90. What is the required height of a top rail above the work platform?
    A. 30 inches
    B. 32 inches
    C. 36 inches
    D. 42 inches
    E. 51 inches

91. Which of the following is an example of when a work platform should be replaced?
    A. Rails have a dull sheen
    B. Rails bent from a fall
    C. Wood surface is rough
    D. Metal surface is smooth
    E. Deck has been cleaned

92. What is one of the considerations when a J-bolt is used at a wire rope termination when used with suspended scaffolds?
    A. You must torque the bolts
    B. You must not re-use them
    C. You will need at least four
    D. You must space them 6" apart
    E. You must never re-tighten them

93. What is meant when you "tie off the platform"?
    A. Securing equipment to the platform
    B. Securing the outrigger to the structure
    C. Securing the platform to the structure
    D. Having an independent lifeline
    E. Having a trolley line for a lifeline

94. If swaging is allowed for a wire rope termination, what is one of the requirements?
    A. It must be done in a factory setting
    B. A torque wrench must be used
    C. A special crimping tool must be used
    D. More than one swing must be used
    E. The wire rope must first be heated

95. Where are wire rope thimbles used?
    A. Between the termination strands
    B. In the loop of the termination
    C. Inside the J-bolt connections
    D. Around the shackles
    E. With the platform stirrup

96. What is one of the key considerations that must be observed if a mid-air transfer of a single-point basket is intended?
    A. Process must be conducted when the basket is at its highest point
    B. Procedure must be pre-planned at ground level before the transfer
    C. Only one wire rope support is allowed for this procedure
    D. This is the only procedure in which fall arrest equipment is disconnected
    E. No person is allowed to be in the basket during the transfer

97. Is it acceptable for an electric hoist for a single-point basket to be used inside an empty tank that has been recently used to store gasoline?
    A. No, an air-operated hoist must be used
    B. No, unless the motor is completely enclosed
    C. Only if there is proper grounding available
    D. Only if the worker wears a protective mask
    E. Yes, provide fresh air is also provided

98. Should you be concerned with ropes being exposed to certain acids?
    A. No, because they have protective coatings
    B. No, because they are air-exposed
    C. Only if the core is synthetic
    D. Only if IWRC rope is used
    E. Yes, they could be weakened

99. Who has the authority to cite a company for non-compliance of regulations concerning worker safety on suspended scaffolds?
    A. OSHA
    B. ANSI
    C. Local police
    D. Municipal officials
    E. Structure owners

100. Who writes codes for suspended scaffold?
    A. The owner of the structure in question
    B. Specially trained competent persons
    C. Local worker's compensation organizations
    D. American National Standards Institute
    E. Scaffold & Access Industry Association