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Solar Contractor C46 Exam Preparation Course
 Diablo Valley College
 AET 150F-8561
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Practice Solar C46 Quiz
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1. With 2 fans wired in parallel, the total capacity in CFM is?
 - a. **Doubled**
 - b. Halved
 - c. Same as 1 fan
 - d. tripled
2. Who do building officials recognize to approve solar hot water systems?
 - a. **Solar Rating & Certification Corporation**
 - b. Solar Ratified Collector Cooperative
 - c. Sandia Research & Rating Company
 - d. IREC
3. What does the NEC require in a 120 V AC circuit in a horse stable?
 - a. Branch circuit
 - b. **Overcurrent protection**
 - c. DC disconnect
 - d. Lightening protection
4. Heat capacity is
 - a. 1
 - b. **Specific heat times density**
 - c. A calorie, which is the amount of energy required to heat 1 gram of water 1 degree
 - d. Specific heat divided by density
5. If PV costs \$2.35 per watt, then how much would it cost for 3.1 kW?
 - a. **\$7285**
 - b. \$7581
 - c. \$13,194
 - d. \$1319
6. What should not make contact with aluminum?
 - a. **Steel**
 - b. Iron (galvanized)
 - c. Copper
 - d. Plastic
7. When is foot protection required?
 - a. When walking on solar collectors
 - b. When walking on solar panels
 - c. **When there is a danger of objects falling on your feet**
 - d. Always
8. Minimum working clearance in front of a 500V electrical panel?
 - a. **36"**
 - b. 48"
 - c. 72"
 - d. 30"
9. What valve allows one way flow of fluids?
 - a. T&P
 - b. **Check**
 - c. Reducing
 - d. Diode
10. What's the difference between batted and blanket insulation?
 - a. Width
 - b. **Length**
 - c. Material
 - d. R-value
11. In a right triangle, an angle is 25 degrees. The hypotenuse is 100 feet and you want to know the length of the opposite side of the angle. What is the equation?
 - a. **Opposite = 100 x sin 25**
 - b. Opposite = 25 x sin 100
 - c. Opposite = 100 x cos 25
 - d. Opposite = 25 x cos 100
12. If in the evening, the water in the storage tank was 150 degrees F and in the morning the water was 100 degrees cooler and you did not use much heat during the night, the most likely cause is:
 - a. Your tank is too big
 - b. Line loss
 - c. **Poor tank insulation**
 - d. The specific gravity has dropped

13. When building codes are different, which one do you follow?
- a. Federal
 - b. State
 - c. Local
 - d. Global
14. To install on a tile roof
- a. Remove tiles to install bolts
 - b. Don't remove tiles
 - c. Don't install on tile
 - d. Only install on Spanish tiles
15. When 2 people are carrying a collector, how should they carry it?
- a. On opposite shoulders (R & L)
 - b. On the same shoulder (R or L)
 - c. One walking backwards
 - d. You don't ever need 2 people
16. You apply brazing in this order:
- a. Top-sides-bottom
 - b. Bottom-sides-top
 - c. Sides-top-bottom
 - d. Sides-bottom-top
17. When drilling a hole through a beam, how far from the edge must you be?
- a. 1"
 - b. 1.75"
 - c. 2"
 - d. 3.75"
18. You put overcurrent protection on this color of wire?
- a. Black
 - b. White
 - c. Green
 - d. Bare
19. If your plans are slightly off, what do you do?
- a. Change the plans
 - b. Tell the general contractor
 - c. Call your inspector
 - d. Notify the owner
20. There is an 8' by 8' window which is shaded by an overhang. The shadow at 3pm covers the top 3 feet of the window. What percentage of the window is shaded at 3pm?
- a. 37.5%
 - b. It is impossible to tell with this information
 - c. 62.5%
 - d. 24%
21. Heat loss from a building is?
- a. Unsulation
 - b. Exfoliation
 - c. Infiltration
 - d. Fluidity
22. If a customer bought a \$5K solar system, got a \$500 factory rebate & a \$20 toy gift, how much of the cost of the system would be eligible for an income tax credit?
- a. \$5K
 - b. \$4500
 - c. \$4480
 - d. None of it
23. Pipe can't be used for water supply
- a. PVC
 - b. Copper
 - c. Galvanized
 - d. None of the above
24. How many amps can you use on a 12 AWG copper wire?
- a. 5
 - b. 10
 - c. 15
 - d. 20
25. If you increase the diameter of a duct 2 times, how much do you increase the volume?
- a. 1 time
 - b. 2 times
 - c. 3 times
 - d. 4 times
26. What is the hardest type of copper pipe?
- a. L
 - b. Blue
 - c. K
 - d. Bare
27. This prevents current from reversing itself in DC to AC situations?
- a. Arc fault equip.
 - b. Diode
 - c. Overcurrent protection
 - d. Reverse biased copper
28. When mounting a rack on a gravel roof, after clearing away the gravel, you should
- a. Locate the center of the hole
 - b. Do not clear away the gravel
 - c. Do not mount on a gravel roof
 - d. Roofs are not made of gravel

29. What is not an acceptable safety precaution for working on a 5:12 roof?
- PFAS
 - Railings
 - Dedicated safety person
 - Warning lines
30. What measures voltage?
- Voltmeter
 - Pyranometer
 - Ohmmeter
 - Clamp on meter
31. What type of enclosure do you use for a 48 volt battery?
- Vented box
 - Sealed box
 - Solar box
 - Not a box
32. A 4' lag bolt supports 250lbs, then how many lag bolts would you need to support 5021lbs?
- 20
 - 21
 - 22
 - 23
33. Pipe least affected by corrosion
- Galvanized
 - Copper
 - Plastic
 - Hard steel
34. Who certifies solar hot water systems?
- SRCC
 - IREC
 - UBC
 - UL
35. To protect insulation that is not UV resistant, you should
- Use duct tape
 - Use UV resistant tape or paint
 - All insulation is UV resistant
 - None of the above
36. Blue stripe on pipe indicates that it is this type
- L
 - U
 - K
 - N
37. If the rise is 6 and the run is 6, what is the pitch?
- 6/12
 - 12/12
 - 7
 - 1/12
38. A house with a solar system from the 1970's always gurgles and runs slowly. The problem is probably:
- Air in the line
 - Wrong pipe size
 - Clogged pipe
 - Bad valve
39. What is the correct sequence of work? 1. Design system, 2. Install, 3. Inspection, 4. Pull permit
- 1-2-3-4
 - 1-4-2-3
 - 1-2-4-3
 - 1-4-3-2
40. A unit with 10,000 BTU, the opening for the air supply must have a free area of?
- 1'
 - 2'
 - 10"
 - 6"
41. The specific heat of water is
- 1 BTU
 - 1 Degree
 - 1
 - None of the above
42. If you use 12,000 BTUs per day, how many therms do you use in a year?
- 43.8
 - 1.2
 - 338
 - 228
43. 1 therm equals
- 10 BTU
 - 100 BTU
 - 1000 BTU
 - 100,000 BTU
44. Which type of valve relieves pressure?
- T&P
 - Check valve
 - Stop valve
 - Ball valve
45. Distance between supports for flexible metal conduit
- 4.5'
 - 4'
 - 3'
 - 10'

46. To reduce mud splashing and snow, collectors should be at least this high above the ground?
- a. 5 feet
 - b. 18 inches**
 - c. 1 foot
 - d. 3 feet
47. How many people does it take to carry a 4' x 10' collector?
- a. 1
 - b. 2**
 - c. 3
 - d. 4
48. What is the smallest wire?
- a. 10**
 - b. 1
 - c. 00
 - d. 000
49. If the rise is 15 feet and the run is 15 feet, what is the length of the rafter?
- a. 15 feet
 - b. 21.2'**
 - c. 20 feet
 - d. 15.6'
50. What is most dangerous about LP gas?
- a. It rises like hydrogen and can explode if there is an ignition source
 - b. It is heavier than air and can ignite**
 - c. It is tasteless, colorless & odorless
 - d. It causes immediate health problems associated with the nervous system
51. What is the calculation for gallons in a pool?
- a. LxWxDx7.5**
 - b. LxWx61
 - c. LxWxDx8.3
 - d. LxWxDx8.3x7.5
52. What is the operating current range of a thermal sensor?
- a. Milliamps**
 - b. Amps
 - c. Very low voltage
 - d. Farads
53. Leads to the most corrosion:
- a. Dissimilar metals**
 - b. High flow rate inductance
 - c. Hard water
 - d. How water
54. What type of fire extinguisher do you use to put out a fire near an asphalt kettle?
- a. Water
 - b. CO2
 - c. Dry chemical**
 - d. Foam
55. What type of rope do you use to hoist a collector onto a roof?
- a. Hemp
 - b. Nylon**
 - c. Wire reinforced
 - d. You doing hoist collectors
56. The circuit breaker goes on this wire
- a. Grounded conductor
 - b. Ungrounded conductor**
 - c. Grounding conductor
 - d. Bare wire
57. The energy required to raise 1 pound of water 1 degree F is:
- a. BTU**
 - b. Therm
 - c. Calorie
 - d. Kelvin
58. How many tons of cooling capacity does a 60,000 BTU cooling unit have?
- a. 13
 - b. 5**
 - c. 10
 - d. 60
59. A hot tub has a depth of 4' and a width of 4'. If water is 4" from the top, then how much does the water weigh approximately?
- a. 2870 lbs**
 - b. 46 lbs
 - c. 345 lbs
 - d. 400 lbs
60. Where is the best place to install a domestic hot water system?
- a. Facing south behind a tree
 - b. The place where it gets the most sun**
 - c. Nearest the hot water heater
 - d. East, for the morning sun