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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?
- Federal
  - State
  - Local
  - Global
14. To install on a tile roof
- Remove tiles to install bolts
  - Don't remove tiles
  - Don't install on tile
  - Only install on Spanish tiles
15. When 2 people are carrying a collector, how should they carry it?
- On opposite shoulders (R & L)
  - On the same shoulder (R or L)
  - One walking backwards
  - You don't ever need 2 people
16. You apply brazing in this order:
- Top-sides-bottom
  - Bottom-sides-top
  - Sides-top-bottom
  - Sides-bottom-top
17. When drilling a hole through a beam, how far from the edge must you be?
- 1"
  - 1.75"
  - 2"
  - 3.75"
18. You put overcurrent protection on this color of wire?
- Black
  - White
  - Green
  - Bare
19. If your plans are slightly off, what do you do?
- Change the plans
  - Tell the general contractor
  - Call your inspector
  - 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?
- 37.5%
  - It is impossible to tell with this information
  - 62.5%
  - 24%
21. Heat loss from a building is?
- Uninsulation
  - Exfoliation
  - Infiltration
  - 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?
- \$5K
  - \$4500
  - \$4480
  - None of it
23. Pipe can't be used for water supply
- PVC
  - Copper
  - Galvanized
  - None of the above
24. How many amps can you use on a 12 AWG copper wire?
- 5
  - 10
  - 15
  - 20
25. If you increase the diameter of a duct 2 times, how much do you increase the volume?
- 1 time
  - 2 times
  - 3 times
  - 4 times
26. What is the hardest type of copper pipe?
- L
  - Blue
  - K
  - Bare
27. This prevents current from reversing itself in DC to AC situations?
- Arc fault equip.
  - Diode
  - Overcurrent protection
  - Reverse biased copper
28. When mounting a rack on a gravel roof, after clearing away the gravel, you should
- Locate the center of the hole
  - Do not clear away the gravel
  - Do not mount on a gravel roof
  - 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?
- 5 feet
  - 18 inches
  - 1 foot
  - 3 feet
47. How many people does it take to carry a 4' x 10' collector?
- 1
  - 2
  - 3
  - 4
48. What is the smallest wire?
- 10
  - 1
  - 00
  - 000
49. If the rise is 15 feet and the run is 15 feet, what is the length of the rafter?
- 15 feet
  - 21.2'
  - 20 feet
  - 15.6'
50. What is most dangerous about LP gas?
- It rises like hydrogen and can explode if there is an ignition source
  - It is heavier than air and can ignite
  - It is tasteless, colorless & odorless
  - It causes immediate health problems associated with the nervous system
51. What is the calculation for gallons in a pool?
- $L \times W \times D \times 7.5$
  - $L \times W \times 61$
  - $L \times W \times D \times 8.3$
  - $L \times W \times D \times 8.3 \times 7.5$
52. What is the operating current range of a thermal sensor?
- Milliamps
  - Amps
  - Very low voltage
  - Farads
53. Leads to the most corrosion:
- Dissimilar metals
  - High flow rate inductance
  - Hard water
  - How water
54. What type of fire extinguisher do you use to put out a fire near an asphalt kettle?
- Water
  - CO<sub>2</sub>
  - Dry chemical
  - Foam
55. What type of rope do you use to hoist a collector onto a roof?
- Hemp
  - Nylon
  - Wire reinforced
  - You doing hoist collectors
56. The circuit breaker goes on this wire
- Grounded conductor
  - Ungrounded conductor
  - Grounding conductor
  - Bare wire
57. The energy required to raise 1 pound of water 1 degree F is:
- BTU
  - Therm
  - Calorie
  - Kelvin
58. How many tons of cooling capacity does a 60,000 BTU cooling unit have?
- 13
  - 5
  - 10
  - 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?
- 2870 lbs
  - 46 lbs
  - 345 lbs
  - 400 lbs
60. Where is the best place to install a domestic hot water system?
- Facing south behind a tree
  - The place where it gets the most sun
  - Nearest the hot water heater
  - East, for the morning sun