



Association Connecting Electronics Industries

RAY'S LEAD FREE HAND SOLDERING SECRETS TRAINING CERTIFICATION TEST (DVD-69C) v.1

This test consists of twenty multiple-choice questions. All questions are from the video: *Ray's Lead Free Hand Soldering Secrets (DVD-69C)*.

Each question has only one *most* correct answer. Circle the letter corresponding to your selection for each test item. If you wish to change an answer, erase your choice completely.

You should read through the questions and answer those you are sure of first. After your first pass through the test, then go back and answer the questions that you were not sure of. If two answers appear to be correct, pick the answer that seems to be the most correct response.

When you are finished, check to make sure you have answered all of the questions. Turn in the test materials to the instructor.

The passing grade for this test is 70% (14 correct answers or better).

Good luck!



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Name _____ Date _____

1. **The reason lead free solder has a negative effect on soldering iron tip life is**
 - a. the high copper content
 - b. the high tin content
 - c. the high silver content
 - d. all of the above

2. **The soldering iron tip is made of**
 - a. tin
 - b. silver
 - c. copper with a plating of iron
 - d. zinc

3. **The chrome plating on the sides of the tip**
 - a. prevents the solder from wicking up away from the working area of the tip
 - b. allows for precise temperature control
 - c. keeps you from getting burned at soldering temperatures
 - d. keeps the solder from balling up on the tip

4. **The purpose of the tip holders that help to increase tip life is to**
 - a. help you hold the soldering iron tip
 - b. handle the soldering iron tip safely
 - c. automatically tin the tip after soldering
 - d. automatically reduce the tip temperature when the iron is not being used for soldering

5. **Frequent or excessive use of aggressive tip tanners and scrubber pads will result in**
 - a. tip plating erosion
 - b. pitting of the tip
 - c. reduced tip life
 - d. all of the above

6. **The melting temperature of lead free solder is typically**
 - a. 20 degrees C higher than tin-lead
 - b. 30 degrees C higher than tin-lead
 - c. 40 degrees C higher than tin-lead
 - d. 50 degrees C higher than tin-lead



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- 7. Effective heat transfer is accomplished through**
 - a. soldering iron temperature
 - b. use of aggressive fluxes
 - c. proper tip selection
 - d. large diameter solder wire

- 8. When selecting a tip, always select**
 - a. a tip that has the greatest contact area without overhanging the joint area
 - b. a chisel tip
 - c. a conical tip
 - d. a blade tip

- 9. The size of the tip and the amount of heat it can hold determines the**
 - a. contact area
 - b. thermal mass
 - c. soldering temperature
 - d. all of the above

- 10. When using auxiliary heating, we'll want to attain a board temperature of**
 - a. 100-150 degrees C
 - b. 200-300 degrees C
 - c. 315-371 degrees C
 - d. 400-420 degrees C

- 11. Wetting is defined as the**
 - a. amount of water contained in a lead free solder joint
 - b. shape of the solder joint
 - c. formation of a uniform, smooth, unbroken and adherent film of solder to a basis metal
 - d. texture of the solder joint

- 12. The main purpose of flux is to**
 - a. transfer heat properly
 - b. make the mechanical and electrical connection
 - c. avoid the cleaning operation
 - d. remove oxidation from the metals to be soldered

- 13. Better wetting can be accomplished by**
 - a. soldering at high temperatures
 - b. coating the land with lead free solder before performing the hand soldering operation
 - c. using massive quantities of flux
 - d. all of the above



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- 14. The advantage of using drag soldering during surface mount rework is**
- a. speed
 - b. the accuracy that comes from soldering one lead at a time
 - c. lower soldering temperatures
 - d. longer dwell times
- 15. The down side of using drag soldering for surface mount lead free rework is**
- a. a tendency toward non-wetting
 - b. a tendency toward solder voids
 - c. an imperfect seal between the internal circuitry and the package that surrounds it
 - d. a tendency toward multiple solder bridges
- 16. The secret to effective drag soldering is having the tip**
- a. gliding across the feet of the leads
 - b. pushing down onto the leads
 - c. barely touching the very end of the toes of the leads
 - d. any of the above
- 17. Cross contamination can occur when**
- a. an operator sneezes on an assembly
 - b. oils from ungloved hands get on the assembly
 - c. different solder alloys are mixed
 - d. both a and b
- 18. The biggest issue with cross contamination is**
- a. non-compliance with European Union standards
 - b. ESD damage
 - c. defective solder joints
 - d. solder joint evaluation
- 19. It is especially difficult to control cross contamination during**
- a. reflow soldering
 - b. wave soldering
 - c. hand soldering
 - d. rework and repair
- 20. Tip rinsing is accomplished by**
- a. holding the tip under a water source
 - b. flooding the tip with lead free solder, then wiping the tip
 - c. vigorously washing the tip with a soapy sponge, then rinsing the tip
 - d. all of the above