



Association Connecting Electronics Industries

## **HANDLING IN ELECTRONICS ASSEMBLY TRAINING CERTIFICATION TEST (DVD-24C) v.2**

**This test consists of twenty multiple-choice questions. All questions are from the video: *Handling in Electronics Assembly – DVD-24C*.**

**Use the supplied *Answer Sheet* and circle the letter corresponding to your selection for each test item. If more than one answer appears to be correct, pick the answer that seems to be the most complete response. If you wish to change an answer, erase your choice completely.**

**When 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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## ANSWER SHEET

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Circle the letter corresponding to your answer for each test item.

1	A	B	C	D
2	A	B	C	D
3	A	B	C	D
4	A	B	C	D
5	A	B	C	D
6	A	B	C	D
7	A	B	C	D
8	A	B	C	D
9	A	B	C	D
10	A	B	C	D
11	A	B	C	D
12	A	B	C	D
13	A	B	C	D
14	A	B	C	D
15	A	B	C	D
16	A	B	C	D
17	A	B	C	D
18	A	B	C	D
19	A	B	C	D
20	A	B	C	D



## **HANDLING IN ELECTRONICS ASSEMBLY TRAINING CERTIFICATION TEST (DVD-24C) v.2**

- 1. Every time you handle an electronic device there's a chance of**
  - a. increasing electrical stability
  - b. increasing quality and reliability
  - c. reducing quality and reliability
  - d. reducing the number of tests required
  
- 2. Oxidation**
  - a. occurs when oxygen and other materials interact
  - b. can contaminate metals such as circuit board lands and component leads
  - c. can make it difficult to solder effectively
  - d. all of the above
  
- 3. If possible, components and circuit boards should be**
  - a. blown clean – using compressed air before being stored
  - b. stored in their sealed packaging materials
  - c. tested before being stored
  - d. all of the above
  
- 4. Circuit boards should be handled**
  - a. only by the edges
  - b. only with clean tweezers
  - c. only by touching ceramic components
  - d. only by touching circuit traces
  
- 5. The purpose of flux is to**
  - a. clean oxidation from metal surfaces to be soldered
  - b. protect the cleaned and heated metal surfaces from further oxidation prior to soldering
  - c. clean contamination on metal surfaces from body oils and salt
  - d. all of the above
  
- 6. When a component lead is contaminated**
  - a. oxidation occurs on circuit board traces
  - b. the flux thickens and vaporizes
  - c. solder will not bond to the contaminated metal
  - d. all of the above
  
- 7. If cleaning is required, a good rule of thumb is to clean the assembly**
  - a. just before functional test
  - b. within four hours of the soldering operation
  - c. 24 hours after the soldering operation
  - d. before shipping to the customer



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- 8. Another possible cause of defective solder joints is**
- leaving circuits boards in sealed packages
  - stacking boards without slip sheets
  - cleaning assemblies too soon after soldering
  - using flux that puddles around metal surfaces
- 9. Scratches are a soldering problem because**
- the exposed intermetallic layer will oxidize and prevent proper soldering
  - the circuit board will look ugly
  - a higher incidence of electrostatic discharge will occur
  - the boards are more difficult to handle by the edges
- 10. ESD is a handling issue because**
- electricity from your body can be discharged into an electronic component
  - oils from your fingers can contaminate boards and components
  - sneezing can cause electrical short circuits
  - all of the above
- 11. The grounding wires on wrist straps**
- help support your wrists
  - capture any built up electrical charges and conduct them harmlessly to the ground
  - keep the ground around your workstation free of electromagnetic fields
  - assure that you don't stray from your workstation
- 12. When a company utilizes a "no clean" process**
- it is important to use components with good solderability
  - components and assemblies must be handled with extra care
  - fluxes are less active
  - all of the above
- 13. The handling advantage to tape and reel component packaging is**
- they are easier to identify
  - they are kept cleaner than the other methods of packaging
  - if a reel is dropped, the shock is absorbed by both the reel and tape
  - there are no particular advantages
- 14. The drawback to tape and reel components is**
- there are no particular drawbacks
  - they are too small
  - reels are easily lost or misplaced
  - the punched paper that holds the components can be a source of dust particles



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- 15. Prior to reuse, anti-static stick feeders should be retreated with**
- conformal coating
  - air ionizers
  - static prevention spray
  - lubricating oil
- 16. One drawback of storing components in matrix trays is**
- exposure to the atmosphere
  - increased ESD damage
  - the tendency toward bent leads
  - all of the above
- 17. The way to minimize damage to moisture sensitive devices is to**
- operate with high humidity
  - remove components from their packaging long before the placement operation
  - keep components in their desiccated packaging until it's time for placement
  - perform a pre-placement fluxing operation
- 18. Problems with lead coplanarity in gull wing components results in**
- not being able to properly identify the component
  - ESD damage
  - dewetting
  - one or more leads not touching the land and causing an open or short circuit
- 19. Mishandling component leads**
- can create mechanical stresses on the component
  - can create lead skew
  - can cause contamination
  - all of the above
- 20. Housekeeping can minimize handling errors by**
- throwing sensitive components into the scrap bin
  - keeping your working area clean and organized
  - spraying staticide on all conductive surfaces
  - wiping down mishandled components