

**ESD CERTIFICATION TEST** v.3 (DVD-54C)

**This test consists of twenty-four multiple-choice questions. All questions are from the video: *ESD Control (DVD-54C)*.**

**Each question has only one *most* correct answer. Circle the letter corresponding to your selection for each test item.**

**If you want 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% (17 or more correct answers).**

**Good luck!**

1. Static electricity is best described as
  - a. charge induction
  - b. electrostatic discharge
  - c. an electrical charge at rest
  - d. excessive valence electrons
  
2. Most people feel ESD above
  - a. 2,000 volts
  - b. 20,000 volts
  - c. 20 volts
  - d. 200 volts
  
3. ESD sensitive components can be damaged by as little as
  - a. 2,000 volts
  - b. 20,000 volts
  - c. 20 volts
  - d. 200 volts
  
4. Static electricity rapidly moves from one object to another when
  - a. any item is charged
  - b. two objects with different charges come close together
  - c. two objects with the same charge come close together
  - d. none of the above
  
5. A conductor will
  - a. prevent a wire from shorting to another wire
  - b. resist the flow of electrical current
  - c. prevent the risk of shock
  - d. allow the flow of electrical current
  
6. Insulators
  - a. conduct electricity
  - b. resist the flow of electrical current
  - c. fall somewhere in between conductors and static dissipating materials
  - d. are grounding devices
  
7. Static dissipative materials will allow a charge to be drained to ground
  - a. in a slow, controlled manner
  - b. rapidly, creating an ESD event
  - c. only when the relative humidity is below 30 percent
  - d. too slowly to be effective for ESD control

8. Devices damaged by ESD
  - a. are easily fixed by a qualified technician
  - b. always fail immediately
  - c. may work at first, then fail later on
  - d. are not a problem as long as they pass electrical test
  
9. If ESD isn't controlled, the results are usually
  - a. higher costs
  - b. lower product quality
  - c. unhappy customers
  - d. all of the above
  
10. The reason personal grounding helps control ESD is
  - a. people work in a more controlled manner
  - b. people absorb charges before they reach the electronic assembly
  - c. charges are drained before they reach the ESD sensitive device
  - d. charges simply disappear
  
11. People who are not wearing appropriate personal grounding
  - a. should not be in an ESD protected area
  - b. should not touch product
  - c. should not perform operations at ESD workstations
  - d. all of the above
  
12. The wrist strap needs to be
  - a. worn snugly against the skin
  - b. attached securely to a ground wire with a current limiting resistor
  - c. able to be quickly connected or disconnected
  - d. all of the above
  
13. Shoe grounders are most effective for
  - a. hand soldering operations
  - b. standing operations that require movement
  - c. seated operations
  - d. all of the above
  
14. If you experience a problem when testing wrist straps or shoe grounders
  - a. let your supervisor know immediately
  - b. wiggle the wrist strap, then tap it five times
  - c. place both feet on the metal plate, then plug in the wrist strap
  - d. all of the above

15. To control ESD, it's best to wear clothes made of
  - a. rayon
  - b. wool
  - c. cotton
  - d. polyester
  
16. Moving materials against each other will
  - a. neutralize an electrostatic charge
  - b. neutralize one material and create an electrostatic charge in the other material
  - c. create an electrostatic charge
  - d. remove static electricity
  
17. Examples of non-conductive, static generating materials include
  - a. tape dispensers and hair brushes
  - b. vinyl binders and plastic covers
  - c. Styrofoam cups and plastic safety glasses
  - d. all of the above
  
18. To reduce the effect of non-conductive items in the work place
  - a. apply an anti-static solution
  - b. use an air ionizer
  - c. operate with controlled humidity
  - d. all of the above
  
19. Static dissipative materials
  - a. dissipate humidity in the work area
  - b. conduct electricity slowly enough to not damage ESD sensitive devices
  - c. prevent electricity from being conducted
  - d. ground electricity to make charges harmless
  
20. If you are not sure a device is ESD sensitive, you should
  - a. treat it as if it were ESD sensitive
  - b. treat it like any other device
  - c. include it in the scrap report
  - d. none of the above
  
21. To control ESD in the work area
  - a. don't shuffle your feet when walking
  - b. don't comb your hair
  - c. don't touch static generating materials
  - d. all of the above

22. Components should be
- a. handled only by the leads
  - b. handled only by the non-conductive portion of the component body
  - c. pushed along a static dissipative surface, rather than handled
  - d. all of the above
23. A sealed static shielding bag will
- a. prevent physical damage
  - b. degrade solderability
  - c. protect an enclosed device from ESD damage
  - d. all of the above
24. When transporting ESD sensitive devices
- a. always keep carts on ESD safe floors
  - b. wear your wrist strap
  - c. make sure the relative humidity is under 10 percent
  - d. use closed containers and carts designed for ESD sensitive devices