INTRODUCTION TO THROUGH-HOLE ASSEMBLY *(DVD-27C)*

This test consists of twenty multiple-choice questions. All questions are from the video: *Introduction to Through-Hole Assembly (DVD-27C).*

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. An integrated circuit can be identified by the reference designator
a. R
b. C
c. I
d. U

2. A DIP component has
a. a single row of leads
b. two rows of leads
c. three or more rows of leads
d. any of the above

3. DIPs are usually received from the manufacturer
a. in tubes
b. in trays
c. on tape reels
d. in plastic bags

4. Axial components have
a. a single row of leads
b. an array of rigid leads surrounding the component
c. one lead coming out of each side
d. one lead coming out of the top and bottom

5. An example of a component that requires manual insertion is a
a. socket
b. transformer
c. relay
d. all of the above

6. The purpose of soldering components to the circuit board is to
a. form the electrical and mechanical connections
b. create a power source for the electronics
c. protect the components from harsh conditions
d. protect the components from an ESD event

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7. The purpose of the fixture used on DIP inserters is to
a. provide the correct fit for the size of the circuit board
b. move the board to exact locations underneath the insertion head
c. hold the board in place while the component is inserted
d. all of the above

8. The purpose of the "picker" on the DIP inserter is to
a. line up the leads as the board fixture moves underneath the insertion head
b. get the component from the proper tube and drop it into the insertion head
c. insert the component into the correct holes
d. cut and clinch the leads

9. On axial inserters, components are usually
a. in tubes
b. in plastic bags
c. on tape reels
d. in trays

10. The machine that cuts and re-tapes axial components in a specific order is called a
a. sequencer
b. router
c. cutter
d. displacer

11. The axial inserter part that preforms the leads and places them into the holes is the
a. picker
b. driver
c. anvil
d. sequencer

12. The anvil
a. preforms the component leads
b. checks the polarity of the components
c. cuts and clinches the component leads
d. sequences the axial components

13. A heat sink is an example of a component that will need to be inserted
a. with a DIP inserter
b. with an axial inserter
c. manually
d. with a radial inserter

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14. The purpose of fluxing during wave soldering is to
a. remove oxides from the surfaces of the parts to be soldered
b. prepare the shape of the wave
c. clean residues from the assembly
d. slowly bring the assembly to soldering temperature

15. Preheating the assembly
a. allows a gradual ramp up of temperature before entering the wave
b. activates the flux
c. protects the circuit board and components from thermal shock
d. all of the above

16. The purpose of the hot air knife is to
a. preheat the assembly
b. blow excess solder from the bottom of the assembly
c. create the shape of the solder wave
d. allow the solder to solidify

17. The reason for cleaning the assemblies is to
a. make sure the assemblies pass functional test
b. remove any solder bridges
c. provide a clean surface for installing connectors
d. remove undesired contaminants, including flux residues

18. Electromigration is where
a. metal grows – eventually causing short circuits on the assembly
b. an ESD event zaps a component *after* wave soldering
c. hot air pressure blows off migrating electrons
d. all of the above

19. The purpose of a stress test is to
a. determine whether there are any disturbed connections
b. verify the reliability of the assembly in demanding operating conditions
c. check the functionality of the solder components
d. test for open and short circuits

20. The process that will protect the assembly from dust, dirt and moisture is called
a. burn-in
b. cleanliness verification
c. conformal coating
d. flux application