



WAVE SOLDERING (DVD-47C)

This test consists of twenty multiple-choice questions. All questions are from the video: *Wave Soldering (DVD-47C)*.

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!

WAVE SOLDERING (DVD-47C)

Name _____ Date _____

- 1. The purpose of fluxing is to**
 - a. shape the wave of molten solder
 - b. preheat the assembly
 - c. remove oxides from the surfaces of the parts to be soldered
 - d. all of the above

- 2. Assemblies that are loaded directly onto the conveyor**
 - a. rest on the "V" fingers
 - b. rest on the "L" fingers
 - c. are always attached to a pallet
 - d. are not susceptible to warping

- 3. Low residue fluxes**
 - a. are used when optimum surface preparation is required
 - b. are used in a *no-clean* process
 - c. contain strong organic acid activators
 - d. all of the above

- 4. On wave soldering machines, flux is applied by**
 - a. spray
 - b. foam
 - c. wave
 - d. any the above

- 5. An air knife is used to**
 - a. control the speed of the conveyor
 - b. remove excess solvent and flux from the bottom of the assembly
 - c. cut or reduce airborne flux particles
 - d. profile the temperature of the preheater

- 6. The purpose of preheating the assembly during wave soldering is to**
 - a. activate the flux
 - b. bring the heat of the assembly closer to soldering temperature before entering the wave
 - c. avoid thermal shock to the circuit boards or components
 - d. all of the above

WAVE SOLDERING (DVD-47C)

- 7. The two types of waves used in wave soldering machines are**
 - a. laminar and turbulent
 - b. gull wing and J-shaped
 - c. spray and foam
 - d. solder bars and solder paste

- 8. The hot air knife at the exit of the wave**
 - a. maintains the shape of the wave for a better ride
 - b. promotes solder solidification
 - c. blows excess solder from the bottom of the assembly
 - d. reduces the possibility of thermal shock

- 9. Turning on the system and checking the quantity of flux and solder is part of**
 - a. the production run sequence
 - b. the set-up procedure
 - c. preventive maintenance
 - d. troubleshooting

- 10. The typical temperature of the eutectic tin-lead solder in the pot is**
 - a. 183 degrees C
 - b. 200-220 degrees C
 - c. 220-240 degrees C
 - d. 240-260 degrees C

- 11. The fit of the assembly in the conveyor should be**
 - a. based on how fast the conveyor is moving
 - b. tight enough so that the board is unable to slide in the conveyor
 - c. Loose enough to allow the board or pallet to slide in the conveyor
 - d. determined by the size of the wave

- 12. A nitrogen blanket is used to**
 - a. reduce the amount of oxygen in the atmosphere
 - b. keep the assembly warm before entering the wave
 - c. protect the assembly from solder splashes
 - d. all of the above

- 13. During production, the conveyor should be monitored for**
 - a. any changes in speed
 - b. smoothness of travel
 - c. scummy fingers and finger cleaner level
 - d. all of the above

WAVE SOLDERING (DVD-47C)

- 14. A common way of removing dross from the solder pot is to**
- empty and clean the pot
 - skim it off the surface of the pot
 - suction it out with a hose
 - scoop it out manually with heat resistant gloves
- 15. The entire wave soldering machine should be cleaned of flux and solder residues**
- once per shift
 - every other day
 - once per week
 - once per month
- 16. IPC-TR-460A contains**
- procedures for preventive maintenance
 - solder joint acceptance criteria
 - detailed troubleshooting charts for wave soldering defects
 - wave soldering terminology
- 17. Pinholes and blowholes can be caused by**
- volatiles in alcohol based fluxes not evaporated during preheating
 - excessive conveyor speed
 - low soldering temperature
 - all of the above
- 18. Dewetting and poor wetting is usually caused by**
- inadequate fluxing
 - a malfunctioning air knife
 - the solder pot level being too high
 - the conveyor speed being too low
- 19. Solder bridging is most frequently related to**
- excessive flux
 - solder contamination
 - a rough solder wave
 - solder temperature being too high
- 20. A crack in the solder fillet is almost always related to**
- the shape of the solder wave
 - solder composition or contamination
 - inadequate fluxing
 - an excessively smooth conveyor ride