

Manufacturing Technician Activity Quiz

Name: _____

1. Which of the following safety gear is worn by both manufacturing technicians and line operators?
 - a. Soft cloth caps to cover the hair
 - b. Specially treated uniforms that are flame retardant
 - c. Plastic safety glasses to protect the eyes
 - d. Shoe coverings to limit dust and debris from flying around
2. What does a line operator need to do to become a technician?
 - a. A certain amount of time on the job
 - b. Several technical certification courses
 - c. An Associates degree in Automotive Maintenance Technology
 - d. Experience working all areas of the manufacturing line
3. Ladder logic is important to technicians for what reason?
 - a. It is a graphic representation of how the line is supposed to work, showing what is supposed to be on or off in for each section of the line to function properly.
 - b. It is a graphic representation of any operator error that occurs each day, keeping a log of what each person does.
 - c. It is an animation of how each engine block is supposed to move down the line, showing what happens when the timing for all the parts is correct.
 - d. It is a picture of all the robots, conveyor belts, lifts and other parts of the line, showing which have power and which do not.
4. Which answer below is the best definition of what 'timing' means on a manufacturing line?
 - a. The length of time each shift of operators is on the line running it and making cars.
 - b. The length of time it takes each part, such as an engine block, to go through all the steps
 - c. The carefully planned amount of time each section or moving part of the line takes to work, in order to insure that all the sections work together smoothly.
 - d. The amount of time it takes to build the entire car, from start to finish, including any time spent repairing or replacing faulty switches on the line.
5. Why was it important to look at the log of the movements of the engine block onto the lift, up in the lift and off the lift?
 - a. Because there was no other way of knowing how many seconds or minutes one movement was supposed to take without doing the math.
 - b. To make certain each section of the line was performing as it should. If timing of one section had been off, that could have been the reason the line stopped working.
 - c. To check the engineers calculations for each section. He or she could have gotten it wrong.
 - d. To ensure that the robot could be programmed to take the exact amount of time required to accurately measure the cylinders of the engine block.

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6. How can you calculate the percentage of error of by which something you measure differs from an acceptable measurement? Acceptable measurement is abbreviated as AM below.

<p>a. set up a proportion: $\frac{\text{your measurement}}{\text{AM}} = \frac{x\%}{100}$ Then cross multiply</p>	<p>b. set up a proportion: $\frac{\text{difference of the measures}}{\text{AM}} = \frac{x\%}{100}$ Then cross multiply</p>
<p>c. Divide your measurement by AM, multiply by 100.</p>	<p>d. Multiply your measurement by the AM.</p>

7. If the manufacturing line stops, it costs the company \$3,000 - \$4,000 per hour. A manufacturing robot costs \$100,000 for the hardware alone. If a robot is the reason why the manufacturing line stops, what is the most economical way to get the manufacturing line moving again?

- a. Replace the robot immediately and use the current one for parts
- b. Replace it with a different robot, then send the broken one out to a company that specializes in robot repair.
- c. Call the company that made the robot and have them send out a technician to fix it, since they will have a better idea of what is wrong.
- d. Consult with the line operator who has named the robot and see what he/she wants to do with it, since they care a lot about the robot

8. Why is it OK for the new limit switch to be five degrees off true horizontal?

- a. no one can really tell by looking, so it doesn't look that bad
- b. because the switch is still within the white lines drawn before removing the old switch
- c. being a little crooked doesn't really hurt anything usually
- d. that is well within the tolerance guidelines for that switch

9. What tool is used on the manufacturing line to measure the angle of the limit switch arm?

- a. a protractor
- b. an angle ruler
- c. a regular ruler
- d. a piece of string

10. The LS7400 switches cost the company 7 hours of down time in the last 30 days at \$3,000 - \$4,000 per hour. Which of the answers below are ways to arrive at a valid estimate for the amount of money the faulty limit switches cost the company over the last month? Mark all valid answers on your sheet.

- a. multiply number of hours of down time caused by the switch by both the lowest and highest amounts of money the down time could cost the company, add these two numbers, then divide by two.
- b. calculate an average amount of cost per hour of downtime and then multiply by the number of hours of downtime caused by the faulty switches.
- c. round the number of downtime hours caused by the switches to the highest whole number, then multiply by the lowest possible cost of the downtime per hour.
- d. Average the possible costs of downtime per hour, assume the number of hours of downtime is more than 10, then add an extra zero to the average cost of downtime per hour.

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