

Student: _____ Career: _____ GROUP: 01
Date: Friday, December 6th, 2024.

UNIT THREE: DISCRETE MATH

3.2 PROGRAMMING LANGUAGE. Write answers OR complete next statements.

1. ADA, ACTION SCRIPT, ASP are examples of: _____
2. Programming language can be used to create programs that implement specific algorithms which control the physical and logical behavior of a: _____
3. A programming language is a formal language that specifies a series of instructions for a computer to produce various kinds of data. This is a description, a definition or the use or of programming languages? _____
4. This is one of the 5 top most popular programming languages. It is recognized for its readability and simplicity. It is one of the most adopted programming languages: _____

3.3 DISCRETE MATH. Write TRUE or FALSE to the next statements:

1. To know and understand the basic concepts of mathematics, relationships, graphs, etc. to apply them to models is the purpose of discrete math: _____
2. The definition of the discrete math is to group a set of different ideas: _____
3. Discrete math doesn't study structures and elements to be counted: _____

UNIT FOUR: QUALITY CONTROL

4.1 HISTORY of QUALITY CONTROL. Read and MATCH the words with the sentences:

QA	QUALITY CONTROL	HISTORY	INSPECTION
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1. Where the physical product is examined visually: _____
2. A process by which entities review the quality of all factors involved in production: _____

3. In the early times of production there were some unsatisfied customers, so it was necessary to start a testing process in the products... _____
4. Short form of Quality Assurance: _____

4.2 QUALITY ASSURANCE. Write TRUE or FALSE to the next statements:

1. It helps NOT a company to please customers by providing the right and needed product: _____
2. Assurance MEANS "seguridad": _____
3. Focuses on quality earlier in the process: _____
4. Saves money and time, gains reputation: _____
5. Quality assurance is not a way of preventing mistakes: _____

4.2 QUALITY ASSURANCE. Complete next statements:

1. The terms "quality assurance" and "quality control" are often used interchangeably to refer to ways of _____ of a service or product.
2. Spanish of error prevention: _____
3. Abbreviation of International Organization for Standardization: _____

4.3 FAILURE TESTING. Read and respond next statements:

WHY IS IT IMPORTANT?

Failure testing is an important part of the manufacturing process, no matter what you are manufacturing. Failure testing is a way to ensure that you are producing a product and service that will not fail under different circumstances and situations of stress, weather, temperature, and so on and so forth. Continual failure testing, even after a product is developed, will help you ensure that your manufacturing processes are as optimal as possible and that you are continually improving your products and your services.

When a product or a part or a component fails, then you can examine those failures immediately so that you can correct the problem. When you perform failure testing on a component that has failed, or just to test for potential failure, then you need to correlate your observations of a number of different aspects of the component: the appearance of the component or product, its composition, and its strength. Also keep in mind the design of the product, the operating conditions, the service environment, and the manufacturing history.

Failure testing procedures contain many of the same components and practices as failure analysis. Failure analysis occurs after the fact, but failure testing strives to occur before the fact so that failure can hopefully be avoided by continually testing products and components so that they can be improved before they fail. It would be beneficial to you and your customers if you engage in failure testing on a regular basis, so that you can prevent any future problems. There are a number of different ways that you can go through failure testing; the best approaches to failure testing will be specific to your particular industry. A good overall approach to manufacturing processes, such as lean manufacturing or Six Sigma, will include failure testing as a part of its approach to manufacturing process management.

You will want to ensure that you test the materials of which your parts are made: you will want to take into consideration material composition, the macro structure and the micro structure of the particular component, the distribution of hardness, the mechanical properties of the component, how well the component or the product resists corrosion, what happens when the product is put into prolonged contact with salt, the effect of humidity on the product or the component, different environmental exposures, and what happens when the product is confronted with abrasives. You will also want to look carefully at fatigue (you should be able to test your products and components in some sort of expediated and heightened fatigue test), fracture testing, the flexural, yield, and ultimate strength of your product or component, the impact strength and corrosion resistance of every component of your product, and more.

Failure testing will help you ensure the quality of your products and your services. Regular failure testing will be a preventative measure, rather than a necessarily corrective measure that occurs after the potentially catastrophic fact. Quality within a business is usually defined in terms of the relation between the customer, the process or product, and the business. Quality itself is actually not necessarily just the quality of the product--is it good, is it pretty, is it broken--but also has to do with the relationship between customer and process or product and the process that is used to create and maintain that relationship. This relationship is maintained by continual analysis and assessment, and also by anticipating and then making sure that all needs of the customer, of the process, of the employees, and the business are met.

1. The reading is about: _____
2. Why is failure testing important? *To ensure that the manufacturing process is* _____
3. In line 6, paragraph 5, the meaning of assessment is: _____
4. In paragraph 2, immediately after examining you have to: _____

4.4 STATISTICAL PROCESS CONTROL. Read and respond next statements:

Statistical process control (SPC) is a method of quality control which employs statistical methods to monitor and control a process. This helps to ensure that the process of production operates efficiently, producing more specification-conforming products with less waste (rework or scrap). SPC can be applied to any process where the "conforming product" (product meeting specifications) output can be measured. Key tools used in SPC include run charts, control charts, a focus on continuous improvement, and the design of experiments. An example of a process where SPC is applied is manufacturing lines.

SPC must be practiced in 2 phases: The first phase is the initial establishment of the process, and the second phase is the regular production use of the process. In the second phase, a decision of the period to be examined must be made, depending upon the change in 5M&E conditions (Man, Machine, Material, Method, Movement, Environment) and wear rate of parts used in the manufacturing process (machine parts, jigs, and fixtures).

An advantage of SPC over other methods of quality control, such as "inspection", is that it emphasizes early detection and prevention of problems, rather than the correction of problems after they have occurred.

In addition to reducing waste, SPC can lead to a reduction in the time required to produce the product. SPC makes it less likely the finished product will need to be reworked or scrapped.

1. Long form of **SPC**: _____
2. According to paragraph 2, in how many phases SPC must be practiced? _____
3. It is a method of quality control which employs statistical methods to monitor and control a process (NOT abbreviation): _____
4. In paragraph 1, "conforming product" means: _____

VOCABULARY OF UNIT FOUR: QUALITY CONTROL

PART 1. Write the Spanish meaning to the next words:

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|---------------------------------|--------------------------|
| 1. improve: _____ | 6. feedback: _____ |
| 2. measure: _____ | 7. assessment: _____ |
| 3. analyze: _____ | 8. waste: _____ |
| 4. personnel: _____ | 9. meet the needs: _____ |
| 5. quality relationships: _____ | 10. monitor: _____ |
| _____ | |