Unit 5 - Fundamentals of Fabrication Techniques contd...

Week 3 Assessment

Due on 2019-01-21, 23:59:59

1. Critical assessment of the included fabrication technique observed at the workshop.

I. Concept Design
   - Low work
   - Speeding

II. Concept fabrication
   - No support
   - Low stability

III. Concept design
   - No support
   - Low stability

IV. Concept fabrication
   - No support
   - Low stability

2. No use of tools for fabrication: concept design, principle tools, and prototype fabrication. Which elements is most common among them?

3. Consider the following scenario for the fabrication of a metal component:
   - Effect of different methods on the life of the component
   - Selection and application of materials for the component
   - Selection of tools and machining parameters for the component

4. Which of the following statements is true regarding the accuracy of fabricated parts?

   A. Greater accuracy is achieved with CNC machines compared to traditional machining methods.
   B. The accuracy of fabricated parts is not affected by the choice of machining method.
   C. Fabrication accuracy is limited by the material properties and the tool geometry.

5. Which of the following statements is true regarding the manufacturability of a component?

   A. Complex geometries are easily manufactured with modern machining techniques.
   B. The manufacturability of a component is not affected by the material used.
   C. The manufacturability of a component depends on the material properties and the complexity of the design.

6. Which of the following statements is true regarding the cost of production?

   A. The cost of production increases with the complexity of the design.
   B. The cost of production is independent of the manufacturing process.
   C. The cost of production decreases with the automation of the manufacturing process.

7. Identify the key factors that influence the selection of a manufacturing process:

   - Cost
   - Production rate
   - Quality of the final product
   - Environmental impact

8. Which of the following statements is true regarding the selection of a manufacturing process?

   A. The selection of a manufacturing process is based solely on the cost of the process.
   B. The selection of a manufacturing process is a complex decision involving multiple factors.
   C. The selection of a manufacturing process is independent of the product design.

9. Which of the following statements is true regarding the optimization of a manufacturing process?

   A. Optimization of a manufacturing process is achieved by reducing the cost of the process.
   B. Optimization of a manufacturing process is achieved by improving the quality of the final product.
   C. Optimization of a manufacturing process is achieved by balancing the cost, quality, and production rate.

10. Which of the following statements is true regarding the quality control of a manufactured part?

    A. Quality control is only necessary after the manufacturing process is complete.
    B. Quality control is a continuous process throughout the manufacturing process.
    C. Quality control is not necessary if all the machines used in the manufacturing process are in good condition.

11. Which of the following statements is true regarding the safety in a manufacturing environment?

    A. Safety in a manufacturing environment is achieved by providing personal protective equipment for the workers.
    B. Safety in a manufacturing environment is achieved by eliminating all potential hazards.
    C. Safety in a manufacturing environment is achieved by training the workers on how to operate the machines safely.

12. Which of the following statements is true regarding the environmental impact of a manufacturing process?

    A. The environmental impact of a manufacturing process is negligible if all the machines used are energy-efficient.
    B. The environmental impact of a manufacturing process is not affected by the location of the manufacturing facility.
    C. The environmental impact of a manufacturing process can be reduced by implementing sustainable practices such as recycling and reusing materials.

13. Which of the following statements is true regarding the scalability of a manufacturing process?

    A. Scalability of a manufacturing process is achieved by increasing the production rate.
    B. Scalability of a manufacturing process is achieved by reducing the cost of the process.
    C. Scalability of a manufacturing process is achieved by ensuring that the process can be easily adapted to changes in demand.

14. Which of the following statements is true regarding the maintenance of manufacturing equipment?

    A. Regular maintenance of manufacturing equipment is not necessary if the equipment is in good condition.
    B. Regular maintenance of manufacturing equipment is achieved by replacing all the parts of the equipment every year.
    C. Regular maintenance of manufacturing equipment is achieved by performing preventive maintenance and addressing issues promptly.

15. Which of the following statements is true regarding the training of workers in a manufacturing environment?

    A. Training of workers in a manufacturing environment is only necessary for new employees.
    B. Training of workers in a manufacturing environment is a continuous process throughout their employment.
    C. Training of workers in a manufacturing environment is not necessary if the workers have experience in similar environments.

16. Which of the following statements is true regarding the communication in a manufacturing environment?

    A. Communication in a manufacturing environment is only necessary for the management.
    B. Communication in a manufacturing environment is a continuous process involving all levels of the organization.
    C. Communication in a manufacturing environment is not necessary if all the workers are located in the same facility.