

MANUFACTURING PROCESSES

6. Name the 3 main stages of manufacturing a part:

- a.
- b.
- c.

Describe "rough forming".

a. Casting

-Sand casting is _____.

Once its cools _____.

-Die castings are _____.

What are the benefits of die casting versus sand casting?

b. Forging

Describe "drop forging".

Describe "press forging".

What is the advantage of forgings over castings?

c. Welding

Define welding.

Describe "**finishing**".

What machines are needed for finishing?

What processes will be accomplished with the tools listed above?

Compile a list of finishing processes:

Describe "**assembly**".

How can designers/engineers help manufacturers keep cost in check?

MANUFACTURING MATERIALS

Name the **3 general material categories**:

- a.
- b.
- c.

METALS

Name **3 classifications of metals**:

- a. _____ (contain iron and steel).
- b. _____ (do not have iron content, such as copper and aluminum).
- c. _____ (are a mixture of two or more metals).

INORGANIC MATERIALS

Name **3 inorganic materials**:

- a. _____ (low tensile strength - ability to be stretched)
- b. _____ (clay and glass - these materials are resistant to heat, chemicals, and corrosion).
- c. _____

PLASTICS

Name the 2 main families of "plastics".

1. _____

Important things to remember about this process are:

- a.
- b.
- c.
- d.

2. _____

Important things to remember about this process are:

- a.
- b.
- c.
- d.

Typical plastic processing operations include the following - (describe each process and how it is used).

-Extrusion Process: _____

-Blow Molding Process: _____

-Injection Molding: _____

Describe the **Thermoforming of Plastic Process.**

HEAT-TREATING

Define "**heat-treating**".

Define **annealing**.

Define **hardening**

COMPUTERS IN MANUFACTURING

How are the following used in manufacturing:

-**CAD/CAM** (Computer-aided drafting/computer-aided manufacturing): _____

-**CNC** (Computer Numerical Control): _____

What are the advantages of the CNC machining?

- a.
- b.
- c.
- d.

MEASURING DEVICES USED IN MANUFACTURING

Name 2 measuring devices used in manufacturing and describe each.

1. _____

- a.
- b.

2. _____

- a.
- b.
- c.

What 4 types of measurement will the caliper give the machinist?