Unit 5 Assignment 1: Matching

Learning Objectives and Outcomes

- Explain the processes involved in simple die compaction.
- State the advantages of several advanced powder metal processes.
- Explain the basic machining motions and the purpose of speeds and feeds.
- Describe the effect of heat and pressure on tool wear and their influence on cutting tool design.
- Describe how operational maintenance leads to leaner manufacturing.
- Explain why cutting fluids are used.

Assignment Requirements

Draw a line matching the definition to the correct term on the right.

1. Producing a metal object from metal by compaction and sintering.
   - Diffusion
   - HIP (Hot isostatic pressing)
   - Compaction
   - Recrystallization
   - Sintering
   - CIP (Cold isostatic pressing)
   - Briquette
   - P/M (Powder metallurgy)

2. Making a solid shape in a die by using punches to press together loose powder.

3. A compacted mass of usually fine material such as metallic powder used in powder metallurgy.

4. Fusing compacted material such as metal powders into a solid piece by applying heat sufficient to bond, but not melt, the particles.

5. Compacting a powder by exerting a constant high pressure at room temperature.

6. Compacting a powder by exerting a constant high pressure at elevated temperatures.
7. The slow movement of atoms resulting in the intermingling of atoms or other particles within a metal.

8. A process in which the distorted grain structure of metals that are subjected to mechanical deformation is replaced by a new strain-free grain structure during annealing.

Required Resources
- Bruce et al., Chapters 11 & 12, pages 225-248
- Notes from class

Submission Requirements
Submit the completed assignment to your instructor at the beginning of Unit 6.