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Question 1

Explain these two types of friction and give practical examples.

1. Dry Friction
2. Fluid Friction

**Answer.**

1. Dry Friction: is a force that opposes the relative lateral motion of two solid surfaces in contact. Dry friction is subdivided into Static friction between non-moving surfaces, and Kinetic friction between moving surfaces.
2. Fluid Friction: describes the friction between layers of a viscous fluid that are moving relative to each other. This internal resistance to flow is named Viscosity.

**Question 2**

Explain the following types of machines.

**Answer.**

1. Wedges: A wedge is a triangular shaped tool, and is a portable inclined plane, and one of the six classical simple machines. It can be used to separate two objects or portions of an object, lift up an object, or hold an object in place. It functions by converting a force applied to its blunt end into forces perpendicular (normal) to its inclined surfaces.
2. Square-Threaded Screws: The square thread form is a common screw thread form, used in high load applications such as lead screws and jackscrews. It gets its name from the square cross-section of the thread. It is the lowest friction and most efficient thread form, but it is difficult to fabricate.
3. Journal Bearings: Journal or sleeve bearings make use of a pressure wedge of fluid that forms between the rotating shaft and the bearing. The portion of the shaft supported by the bearing is called the journal and is usually hardened for wear-resistance. Bearing pad material is usually a softer material such as tin- and lead-based Babbitt, bronze, copper-lead, sintered powdered metal, carbon, PTFE, etc.