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**MATRIC NO:**17/ENG06/047

**DEPARTMENT:** MECHANICAL ENGINEERING

**MEE 312 [MECHANICS OF MACHINE 2]**

**ASSIGNMENT 2:**

**QUESTION 1**

**DRY FRICTION:**

**Dry friction** is the force that opposes the relative lateral motion of two solid surfaces in contact. Dry friction always opposes the surfaces sliding relative to one another and can have the effect of either opposing motion or causing motion in bodies.

Practical examples of Dry Friction:

* Dry friction occurs between the tires and the road in a motorcycle. The dry friction force in a motorcycle is what allows it to accelerate.
* Anti-Friction bearings, which have to operate without a liquid lubricant will experience high wear and tear as a result of Dry friction.

**FLUID FRICTION:**

Fluid friction occurs between fluid layers that are moving relative to each other, Fluid friction is the force that resists motion either within the fluid itself or of another medium moving through the fluid. There is an internal friction which is a result of the interaction between molecules of the fluid, and there is external friction which refers to how a fluid interacts with other matter.

Practical examples of Fluid friction:

* You find lighter dust particles move fast on the surface of a flowing river. This is due to the high-velocity gradient at the top of water due to lower dynamic fluid friction at that layer.
* A swimmer’s body and the surface of the water experiences fluid friction.

**QUESTION 2:**

**WEDGES:**

A wedge is a thin simple mechanical device that is used to force two objects apart or to force one object away from a close surface. Wedges have the effect of allowing users to create very large normal force to move objects with relatively small input forces. The friction forces in wedge systems also tend to be very large though, and can reduce the effectiveness of wedges.

**SQUARE-THREADED SCREWS:**

A square-threaded screw is a common screw thread form, used in high load applications such as leadscrews 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. These are difficult to cut with Tap and dies and are usually cut on a lathe with a single point cutting tool, making it expensive.

**JOURNAL BEARINGS:**

A journal bearing is essentially a cylindrical shaft in a cylindrical cavity of larger diameter and the space between them contains a liquid lubricant. Journal bearings are one of the most common types of hydrodynamic bearings.