**ASSIGNMENT**

Name: Ejuoneatse Tosan Dorcas

School: Afe Babalola University Ado Ekiti.

Matric No: 17/ENG06/029

College: Engineering

Department: Mechanical

Course Code/Title: MEE312/Mechanics of Machines

Question 1

Explain two types of friction;dry friction and fluid friction and give practical examples.

**Answer**: First of what is friction in a layman’s term?

It is the act of rubbing one body against another.

Also a descriptive definition of friction is that,friction is the resistance to motion of one object moving relative to another and this can be as a result of the electromagnetic attraction between charged particles in two touching surfaces.

Back to what was asked: Dry friction is a force that opposes the relative lateral motion of two solid surfaces in contact. Dry friction can also be sub-divided into static friction(non-moving surfaces) and kinetic friction(moving surfaces).

Also note that, dry friction generally arises from the interaction of surface features with the exception of atomic or molecular friction.

A very practical example of dry friction is in the anti-friction bearings in which they have to operate without a liquid lubricant and that can lead to high wear and friction. Also another simple example is: when walking, there is static friction between the shoes and the ground so without friction the person can either slip or fall.

Fluid friction: Fluid friction occurs between fluid layers that are moving relative to each other. And this internal resistance to flow is named viscosity(thickness).

Also note that the less viscous the fluid, the greater its ease of deformation or movement. Therefore all real fluids(except superfluids) offer some resistance to shearing and therefore are viscous.

A practical example is the automatic transmission in a car, the torque converter is possible because of fluid friction. Another example is the flow of ink in ball pens and also in the case of shafts operating in engines(oil between shafts serves as a fluid).

**Question 2**

Explain the following types of machines;

**Answer:**

Wedges- A wedge is a triangular shaped tool, and it 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.

Square-threaded screws- It is a common thread form used in high load applications such as lead screws and jacks crews. 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 quite difficult to fabricate.

Journal bearings- First of the portion of the shaft that is in actual contact with the bearing is called journal and for every machine and engine, it is necessary to have a provision for the support of rotating shaft and such support is called bearing. It clearly means that the shaft must be supported through bearing.

Also note that proper lubrication keeps the smooth running of shaft which causes less power loss, less heat production and less noise production.