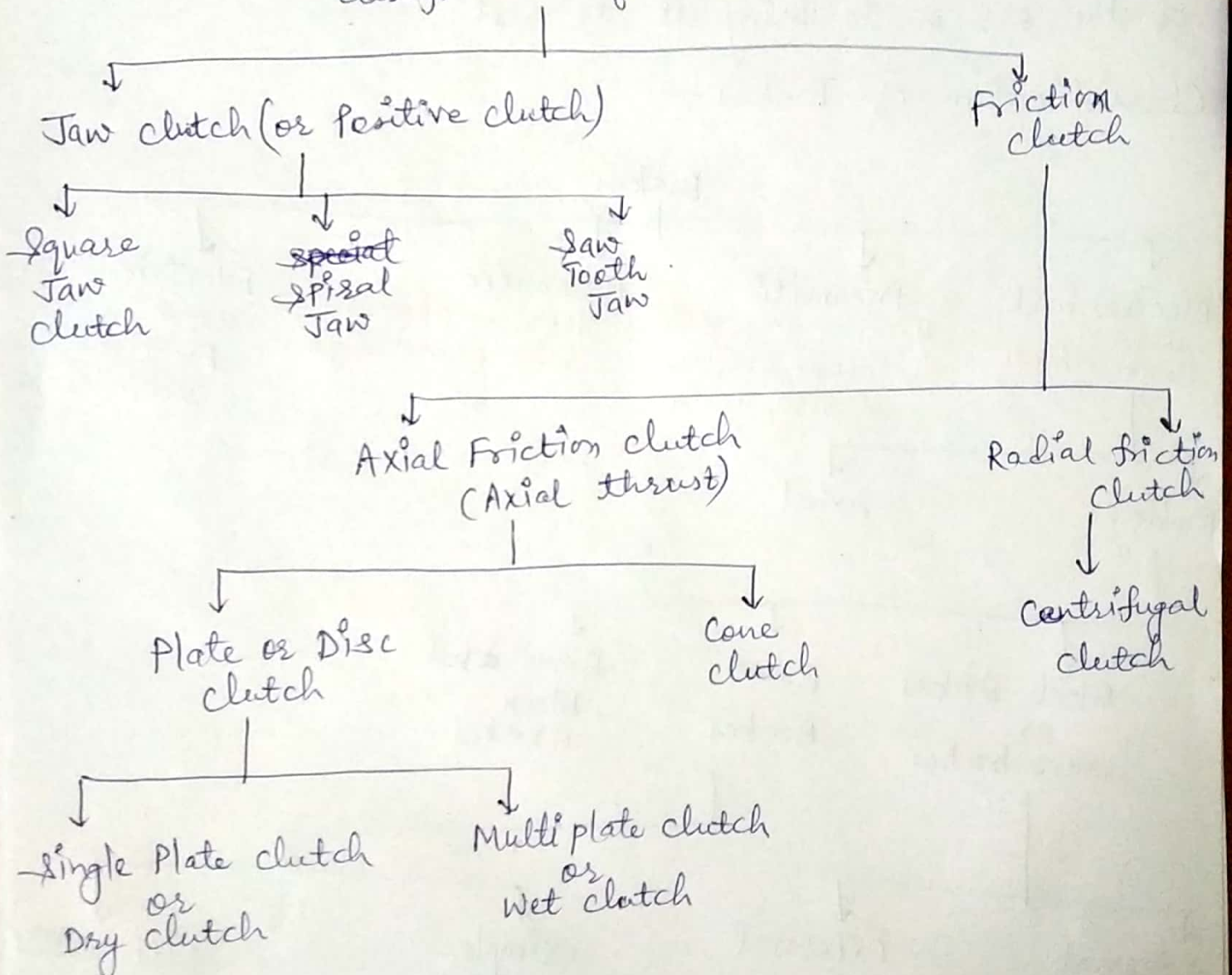


Module - 3
Sub - BME

Clutch → It is a mechanical device, which is used to connect or disconnect the source of power from the remaining parts of the power transmission system at the will of operator. An automotive clutch can permit the engine to run without driving the car.

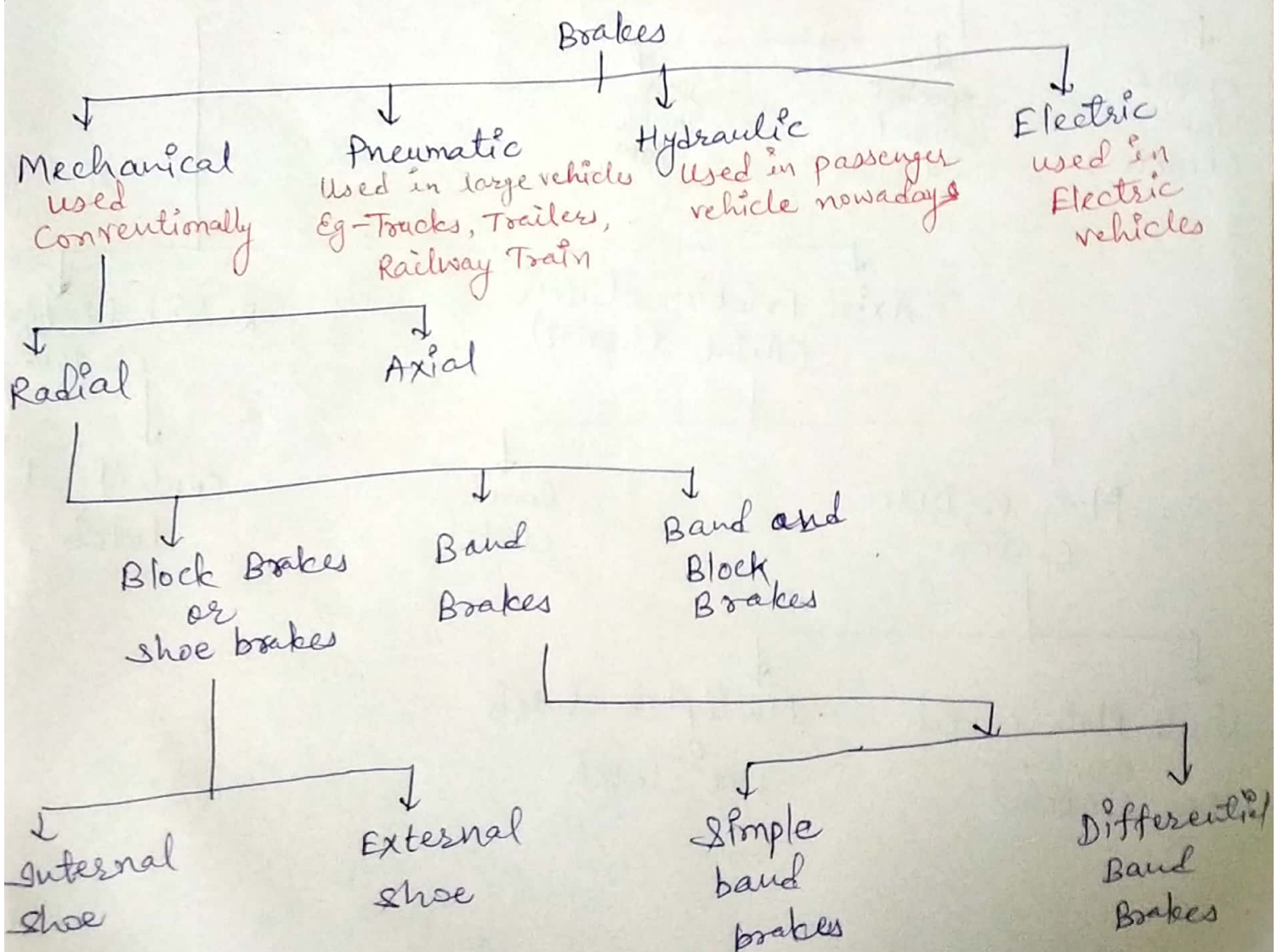
classification of clutches



Brakes → A brake is defined as a mechanical device, which is used to absorb the energy possessed by a moving system or mechanism by means of friction. The primary purpose of the brake is to slow down or completely stop the motion of a moving system such as a rotating drum, machine or vehicle.

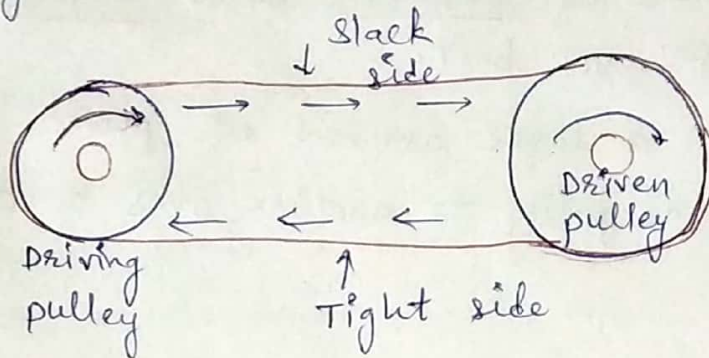
An automobile brake is used either to reduce the speed of the car or to bring it to rest.

Classification of Brakes →



Belt drive

Belt drives → These are used to transfer rotational motion from one shaft to another. Both shafts may rotate at same or variable speed.



A simple belt pulley system consists of a driver pulley and driven pulley. When the driver pulley is rotated, it causes a pulling action due to friction. This pulling action rotates the driven pulley in the same direction as the driver pulley. This pulling action results in a tight side & a slack side on the belt pulley system.

Types of Belt drives →

- 1) Open belt drive
- 2) Closed or crossed belt drive
- 3) Fast or loose cone pulley
- 4) Stepped cone pulley
- 5) Jockey pulley drive

Rope drive

Rope Drive → A rope drive is a form of belt drive, used for mechanical power transmission.

Rope drives use a number of circular section ropes, rather than a single flat or vee belt.

It is widely used when a large amount of power is to be transmitted from one pulley to another, over a considerable distance.

Types of Rope drives →

1) Fibre Ropes

2) Wire Ropes

Gear

Gears → Gears are used to transmit motion from one shaft to another shaft or between a shaft and a slide. Gears use no intermediate link or connector and transmit the motion by direct contact. In this method, the surfaces of 2 bodies make a tangential contact. The gear drive is used when distance between the driver and follower is very small.

Classification of gear -

Based on position of axis of shafts

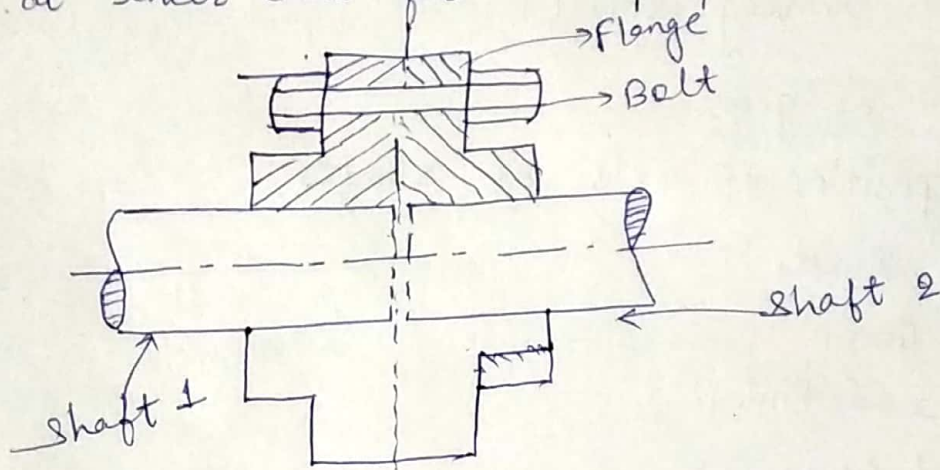
- 1) Parallel shafts
 - a) Spur Gears
 - b) Rack and Pinion
 - c) Helical Gears
 - d) Double-helical or herringbone gear
- 2) Intersecting shafts
 - a) Spiral bevel Gear
 - b) Zero bevel Gear
- 3) Skew shafts (Neither parallel nor intersecting shafts)
 - a) Crossed helical gears
 - b) Worm gears

Coupling

Coupling → These are mechanical elements that couples two drive elements (shafts) which enables motion to be transferred from one element to another element.

or

A coupling is a device used to connect 2 shafts together at their ends for the purpose of transmitting power.



Types of coupling →

1) Rigid Coupling - It is used to connect 2 shafts which are perfectly aligned.

Types of rigid coupling:-

- i) Sleeve or muff coupling
- ii) Clamp or compression coupling
- iii) Flange coupling

2) Flexible Coupling - These are used when the 2 shafts are having both lateral or angular misalignment.

Types of Flexible coupling:-

- i) Universal coupling
- ii) Oldham coupling