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Question:

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Answer:

(i) Uniform pressure theory:

When the mating component in clutch, bearing are new, then the contact between

surfaces may be good over the whole surface.

It means that the pressure over the rubbing surfaces is uniform distributed.

This condition is not valid for old clutches, bearings because mating surfaces may have uneven friction.

The condition assumes that intensity of pressure is same.

$P = W/A = \text{Constant}$; where, W = load, A = area

(ii) Uniform wear theory in clutches and bearings:

When clutch, bearing become old after being used for a given period, then all

parts of the rubbing surfaces will not move with the same

velocity.

The velocity of rubbing surface increases with the distance from the axis of the rotating element.

It means that wear may be different at different radii and rate of wear depends upon the intensity of pressure (P) and the velocity of rubbing surfaces (V).

It is assumed that the rate of wear is proportional to the product of intensity of pressure and velocity of rubbing surfaces.

This condition assumes that rate of wear is uniform;

$P \cdot r = \text{Constant}$; where, P = intensity of pressure, r = radius of rotation.
