Course Code: ESC106A
Course Title: Construction Materials and Engineering Mechanics

Lecture No. 52:
Problems on Wedge Friction

Delivered By: Nimmy Mariam Abraham

Lecture Intended Learning Outcomes

At the end of this lecture, students will be able to:

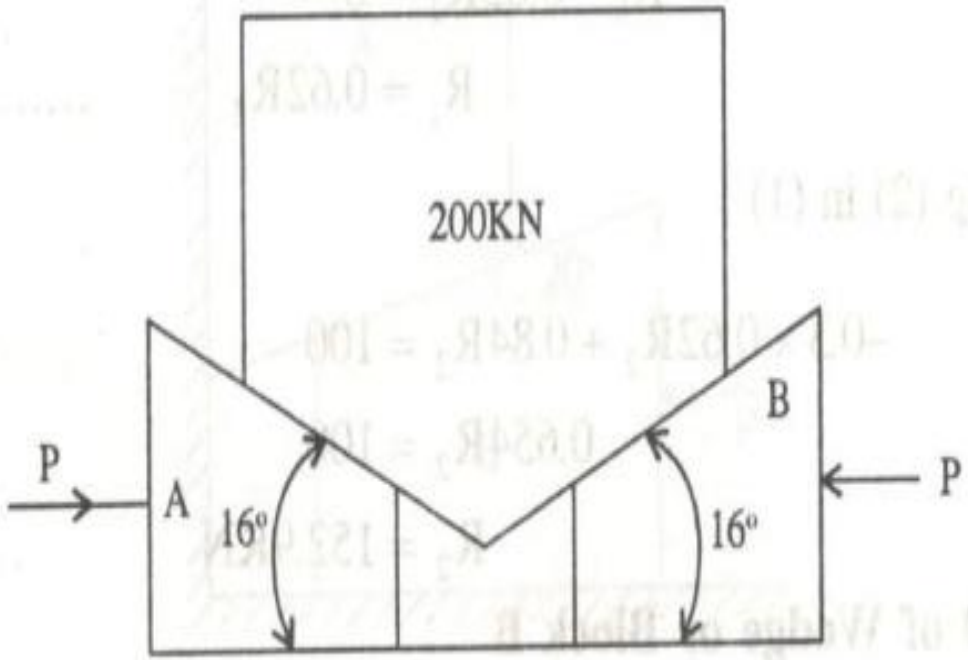
- Draw Free Body diagrams of wedge in the given problems
- Evaluate frictional forces or find the force needed to lift the wedge

Contents

- Numerical problems on wedges

Wedge Friction: Problem 1

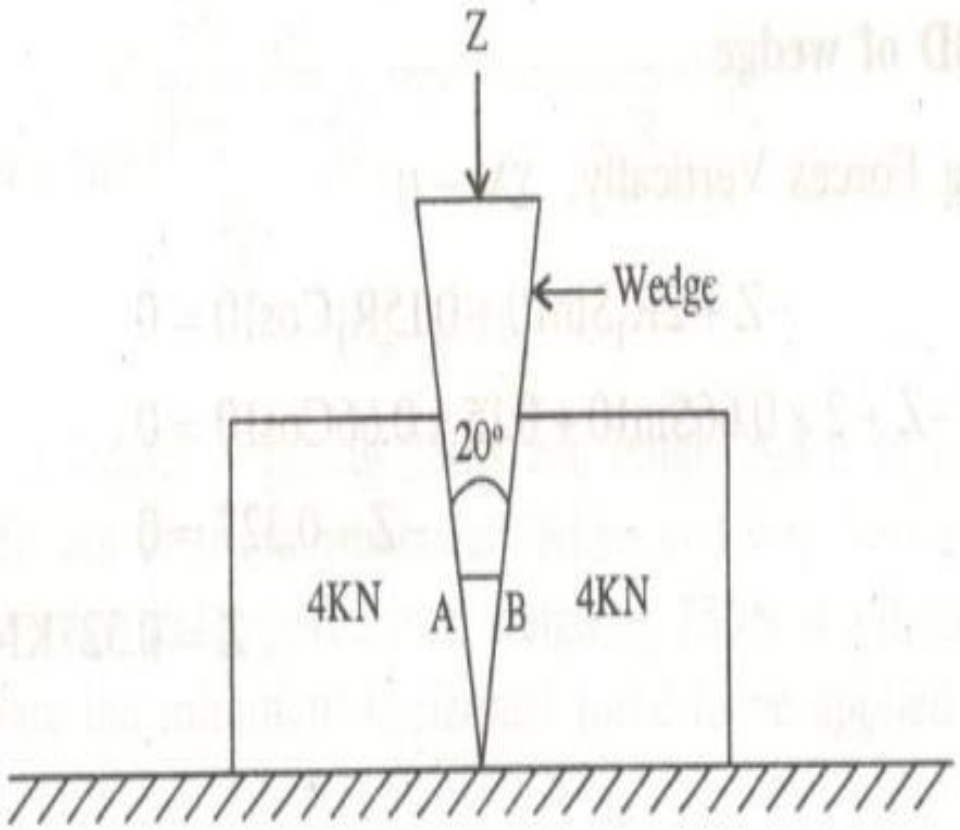
Example: A body of weight 200kN is to be raised by means of the same wedges A and B as shown in figure. Find the force P for impending motion of block C upwards if the coefficient friction is 0.2 for all contact surfaces; neglect weight of wedge.



P=71.6kN

Wedge Friction: Problem 2

Example: Determine the force Z required to start the wedge downwards. Take μ for all contact surface =0.15. Neglect weight of wedge.



Summary

- A wedge is used to produce small adjustments in the position of the body or to apply large forces
- Based on the concept of wedge friction, problems are solved