



Special class on

Simple Mechanism Part I

Apr 24, 2020 • Alok Jha



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Subjects Taken:

Theory of Machines,
Strength of Materials,
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Syllabus

- **Simple mechanism**
- **Velocity & Acceleration analysis**
- **Toothed gear**
- **Gear train**
- **Governor**
- **Flywheel**
- **Kinematic analysis of single slider crank chain mechanism**
- **Dynamics analysis of single slider crank chain mechanism**
- **Gyroscope**
- **Balancing of masses**
- **Vibration**
- **Cam & follower**

Very Important topics in GATE

- **Simple machine (theory / numerical)**
- **Gear train (theory / numerical)**
- **Flywheel (numerical)**
- **Critical speed of shaft(vibration)**
- **Natural vibration (conceptual questions)**

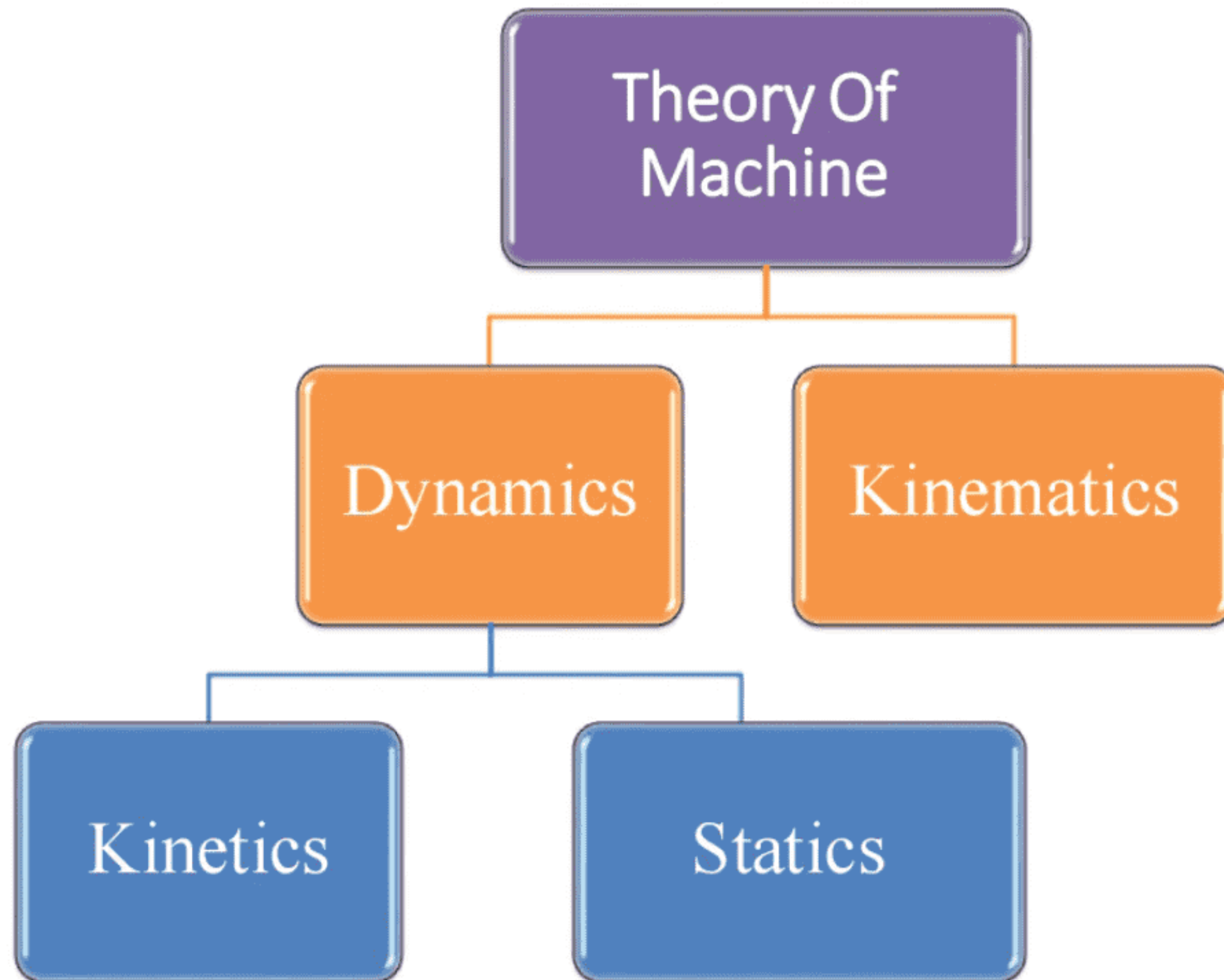
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Theory of Machines: Displacement, velocity and acceleration analysis of plane mechanisms; dynamic analysis of linkages; cams; gears and gear trains; flywheels and governors; balancing of reciprocating and rotating masses; gyroscope.

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CHAPTER-1



SIMPLE MACHINE

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□ WHAT IS MACHINE ?





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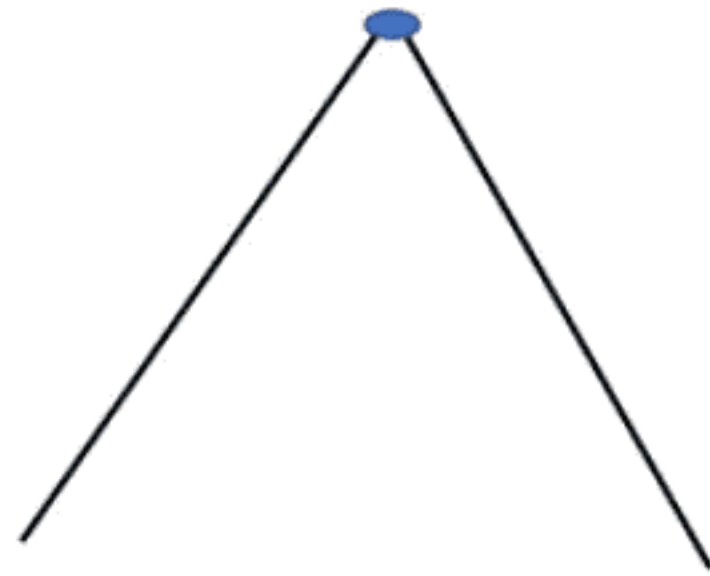
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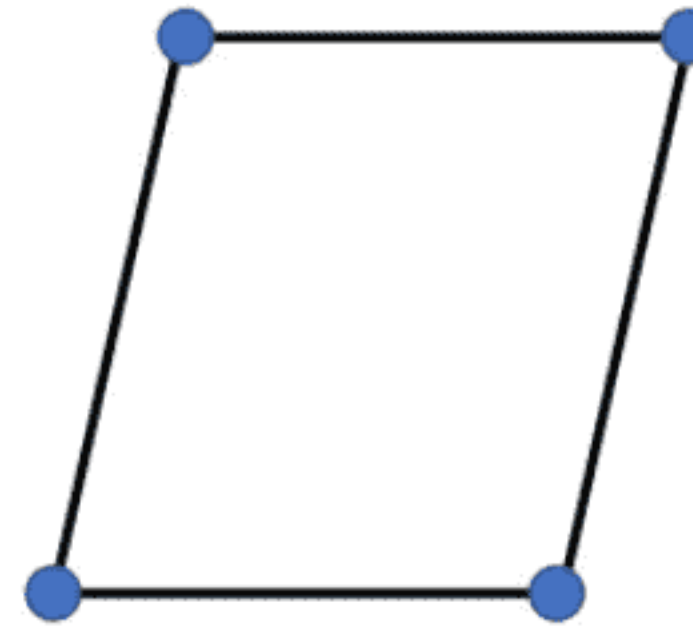
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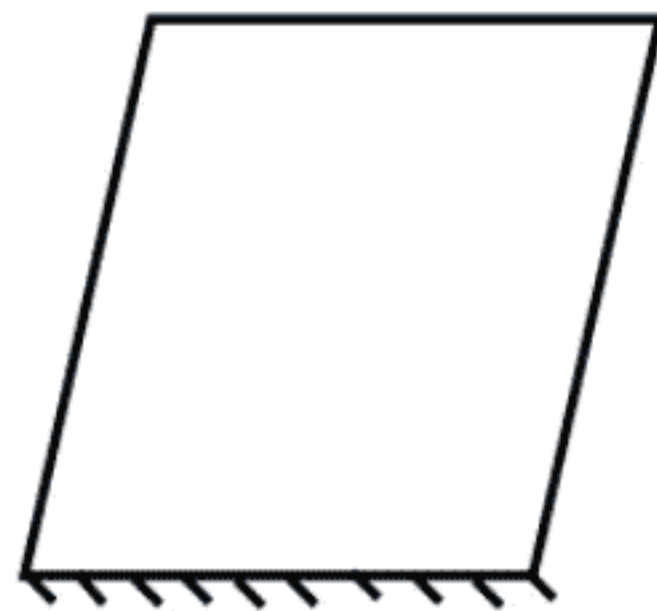
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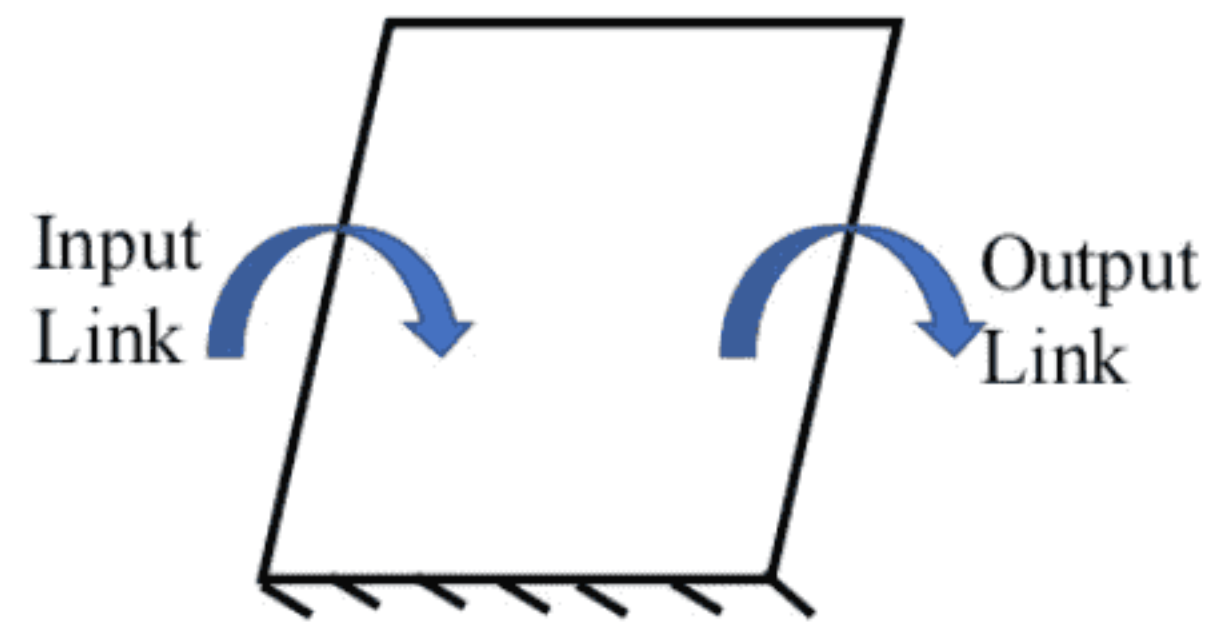
Pair



Chain

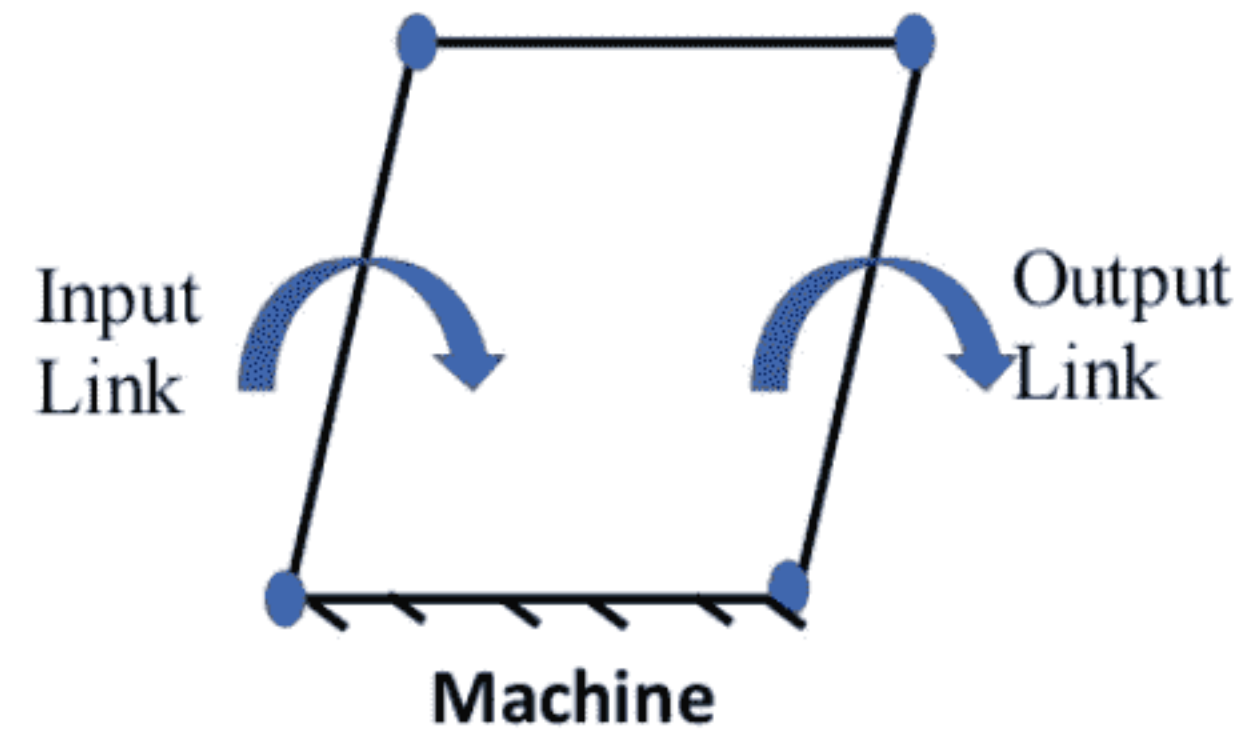


Mechanism

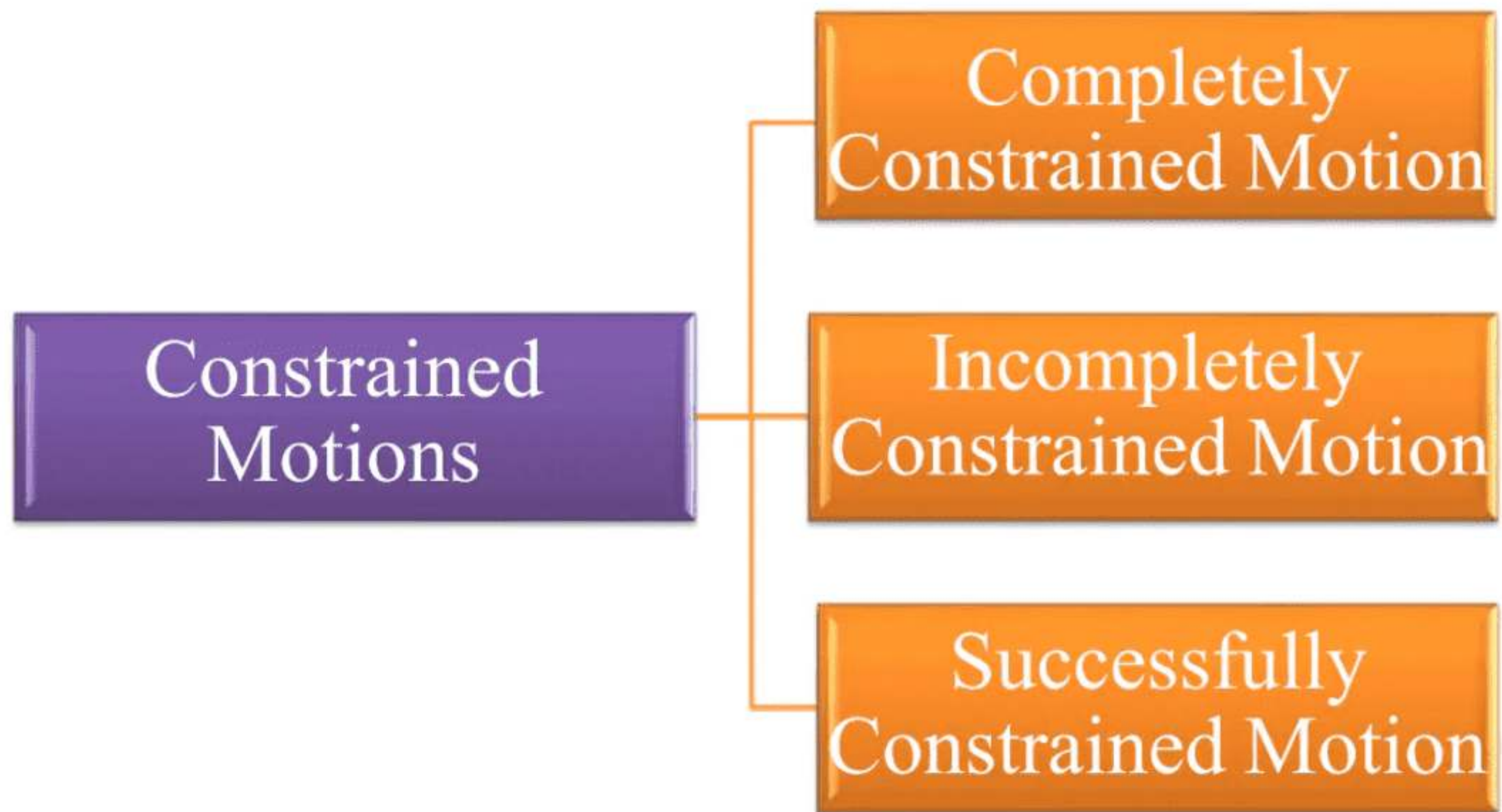


Machine

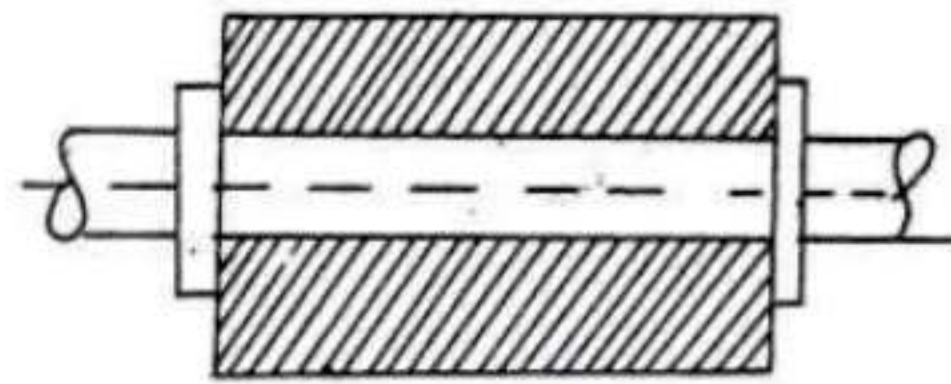
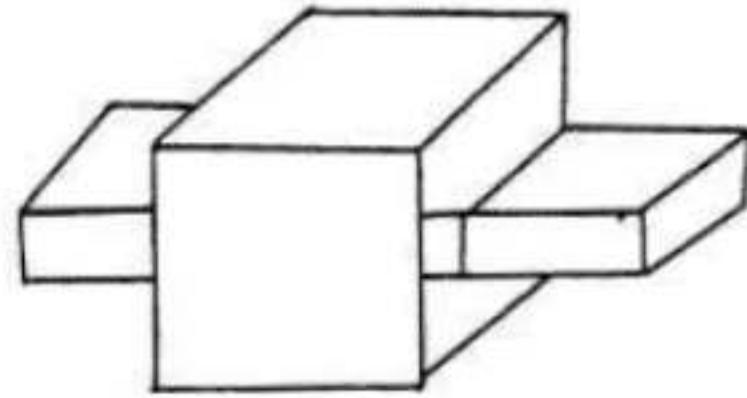
Now lets discuss about machine-



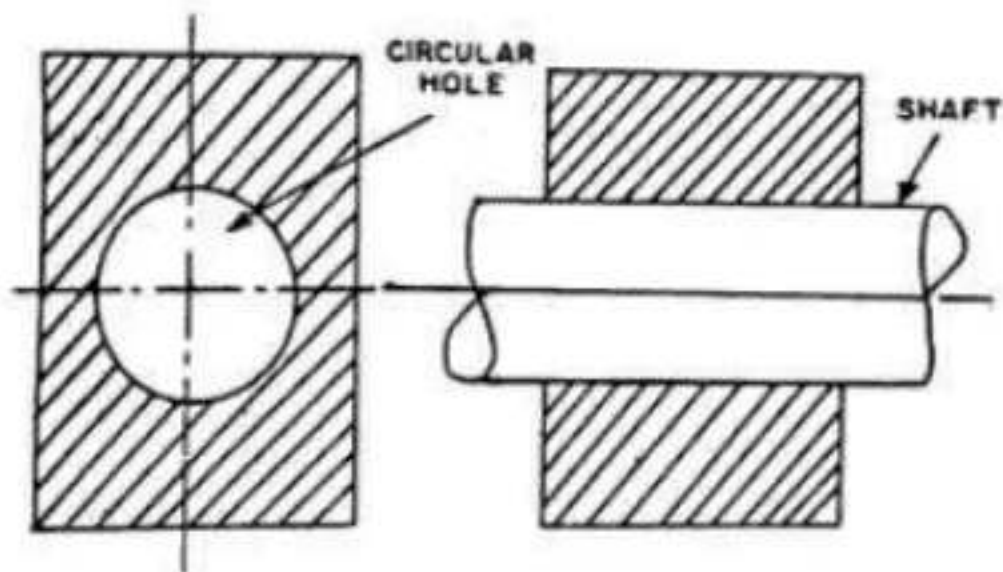
CONSTRAINED MOTIONS



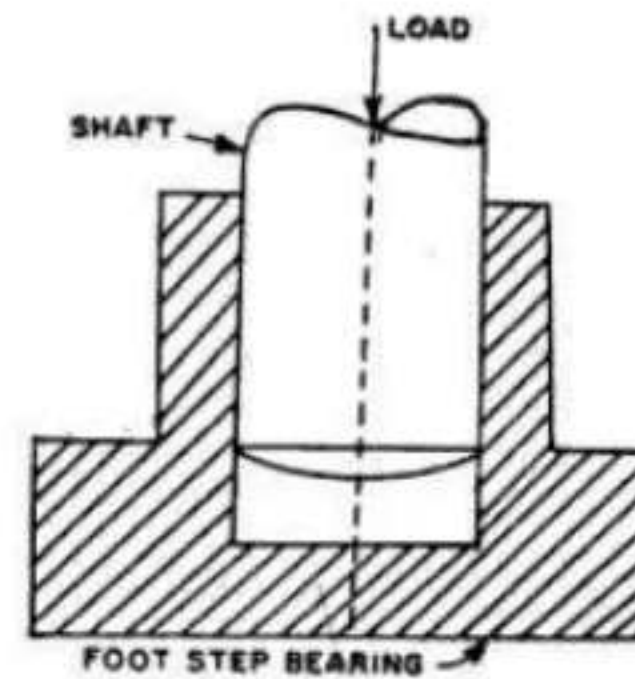
- Completely Constrained Motion



- Incomplete constrained motion



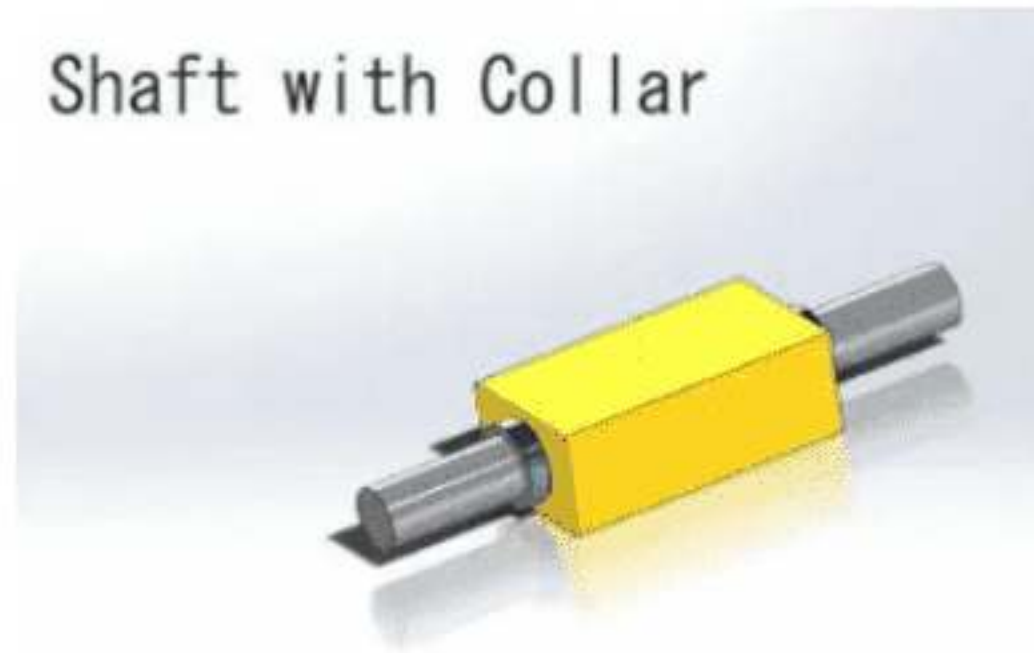
- Successfully Constrained motion



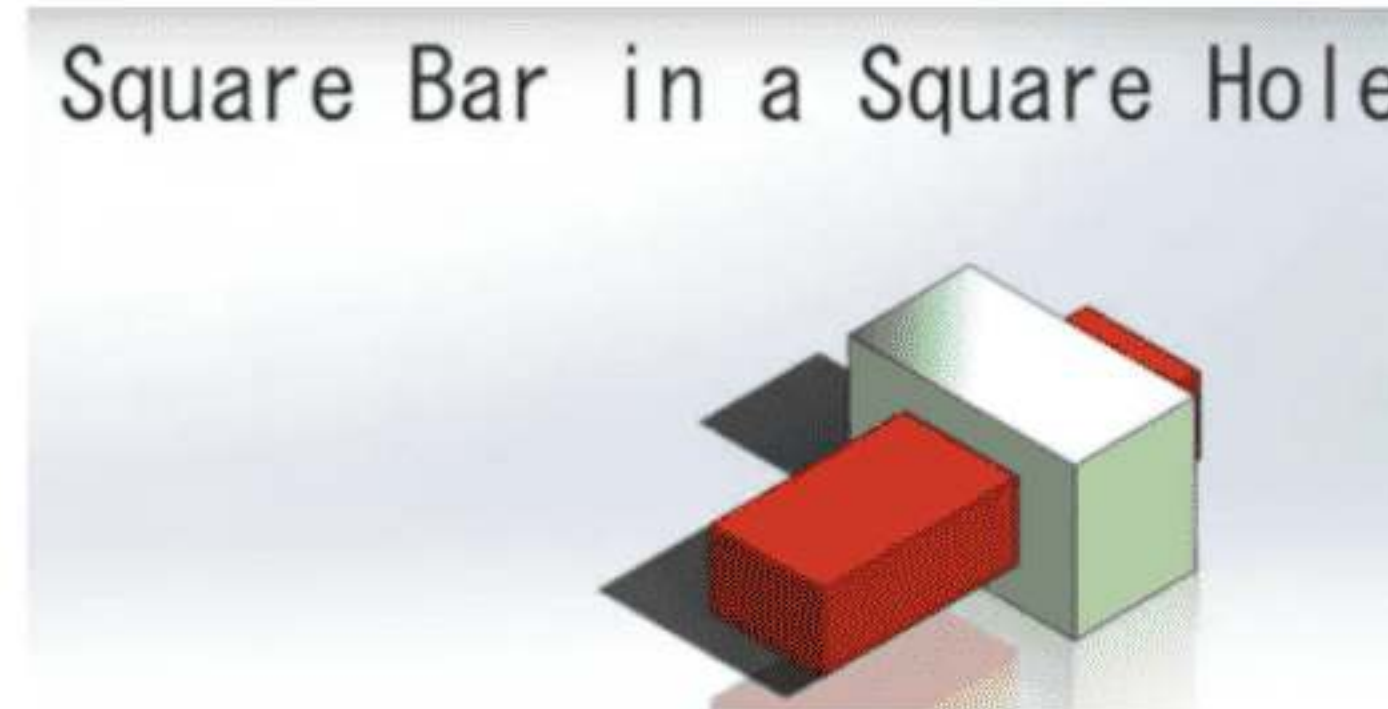
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When the motion between two elements of a pair is in definite direction, irrespective of the direction of force applied, then the motion is said to be completely constrained motion.

Shaft with Collar

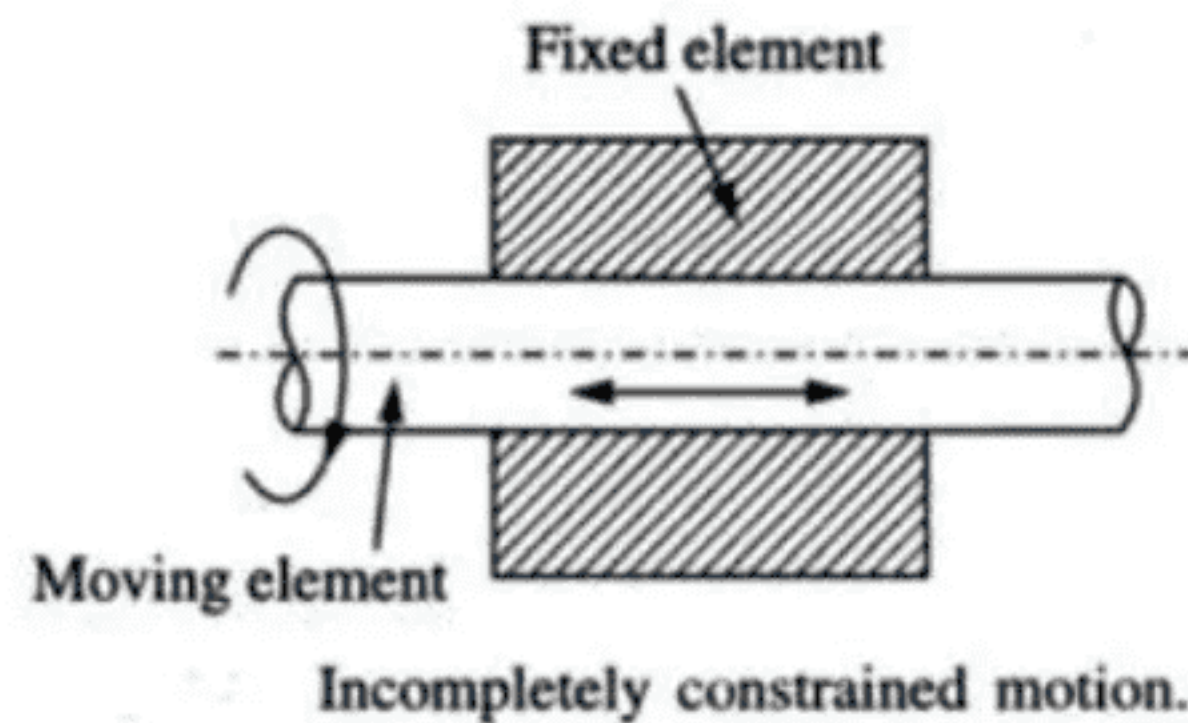


Square Bar in a Square Hole



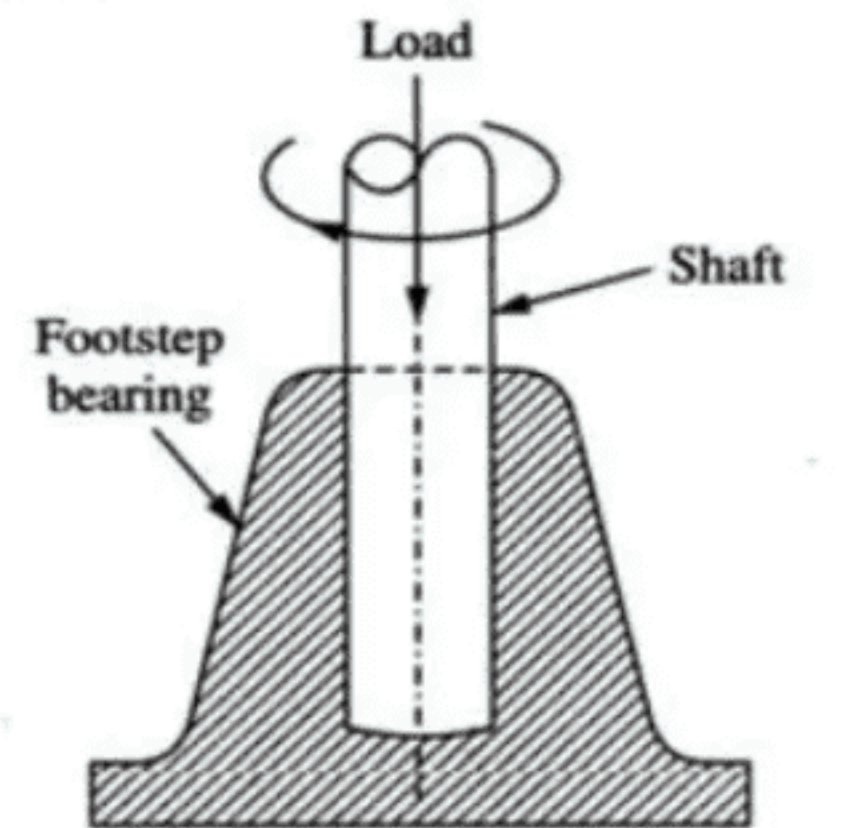
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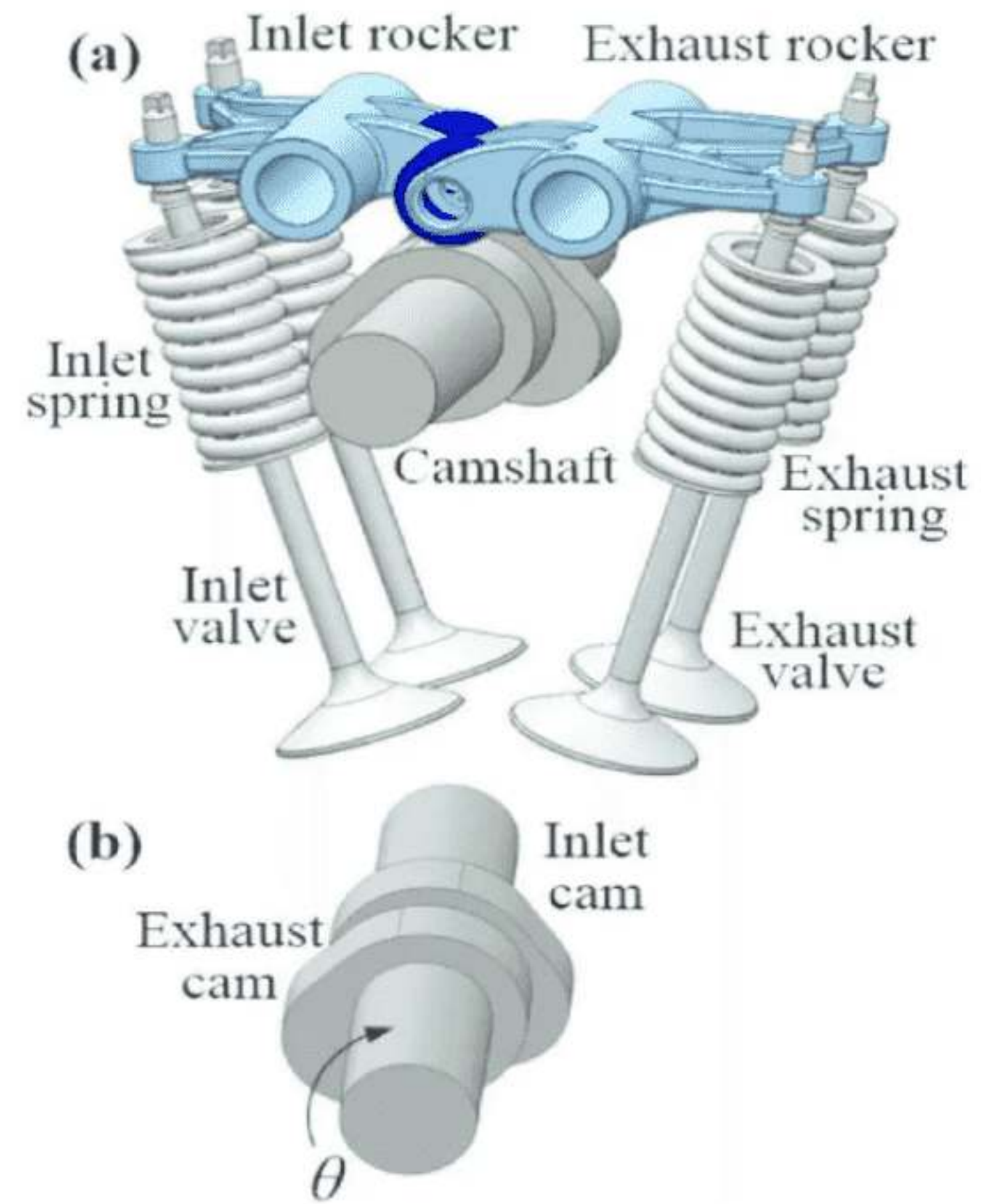
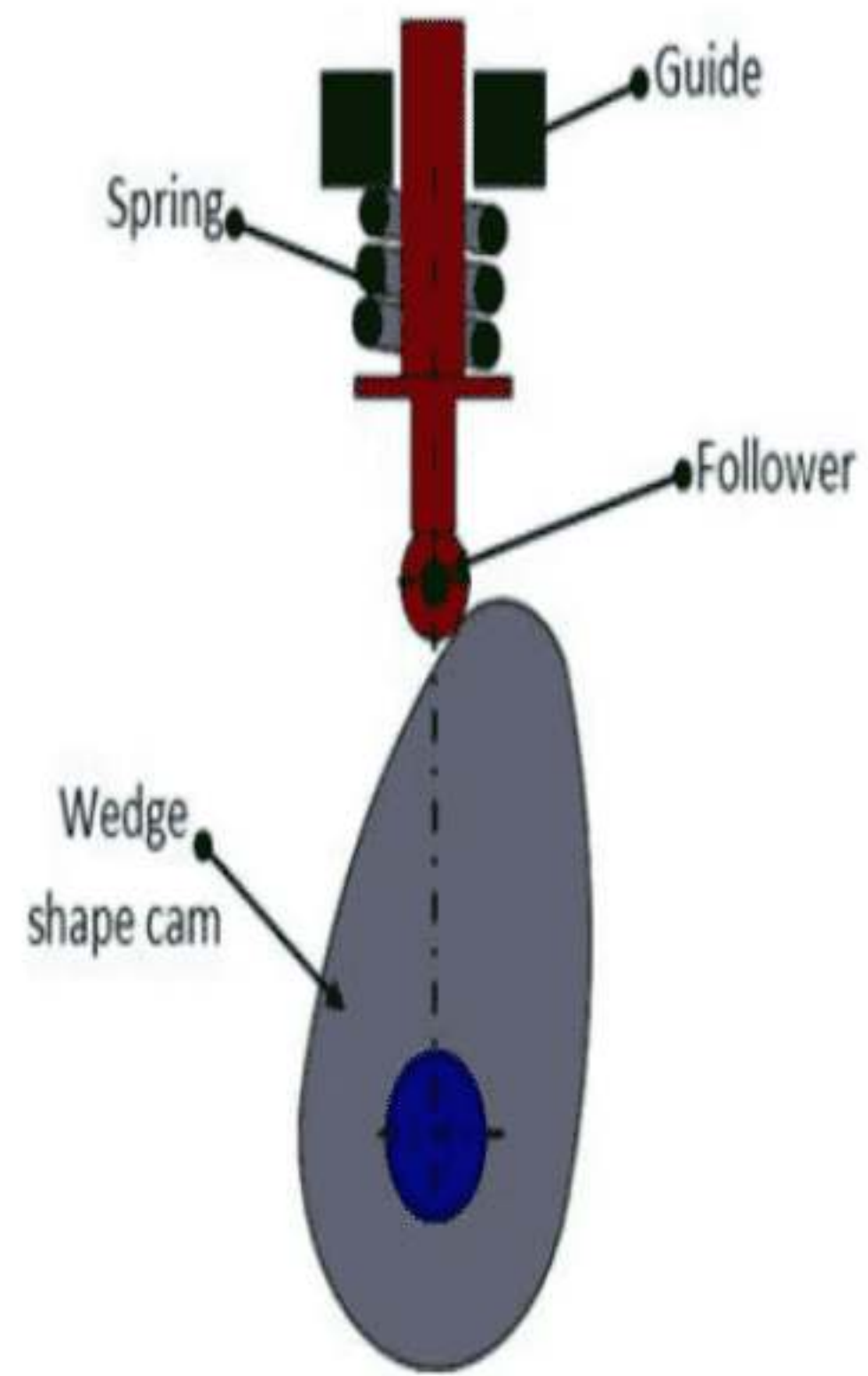


Successfully Constrained Motion

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Partially constrained motion.



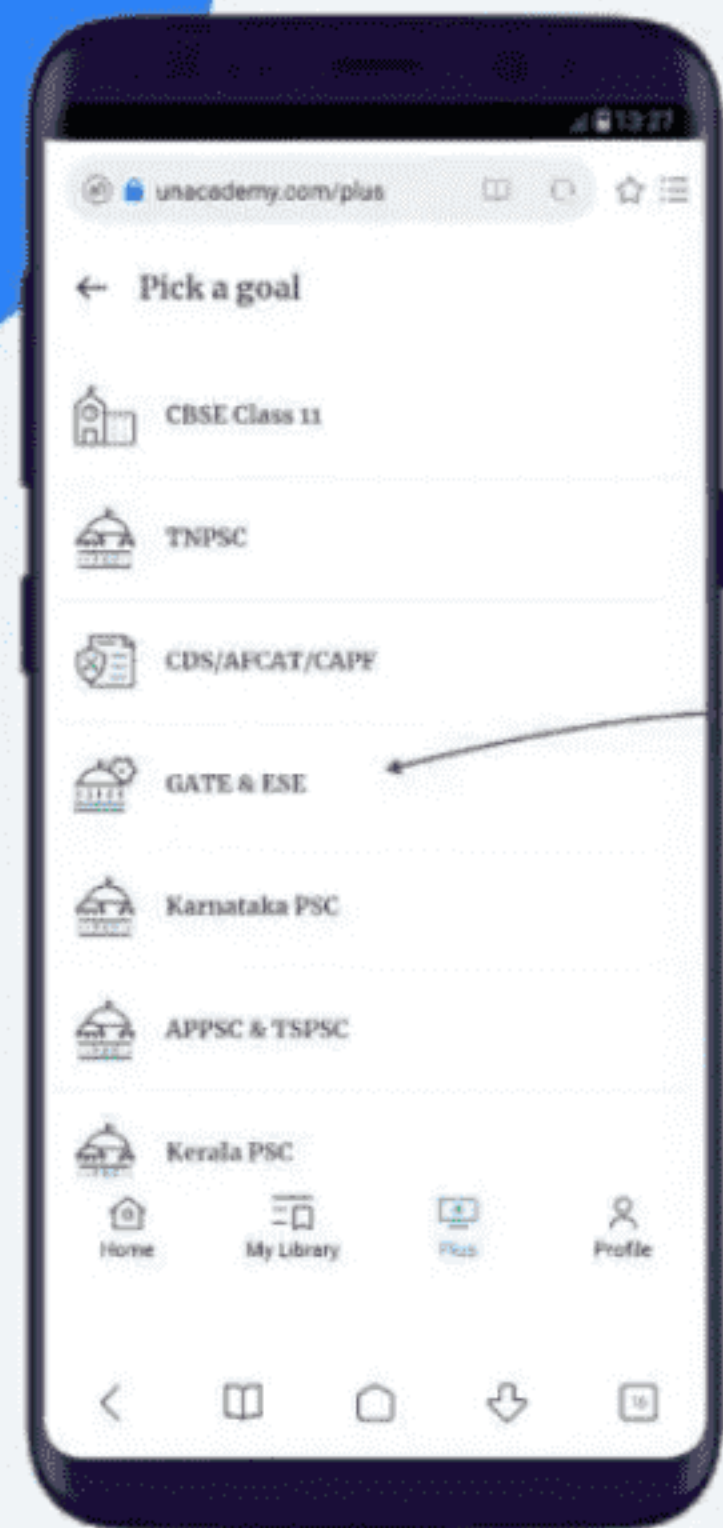


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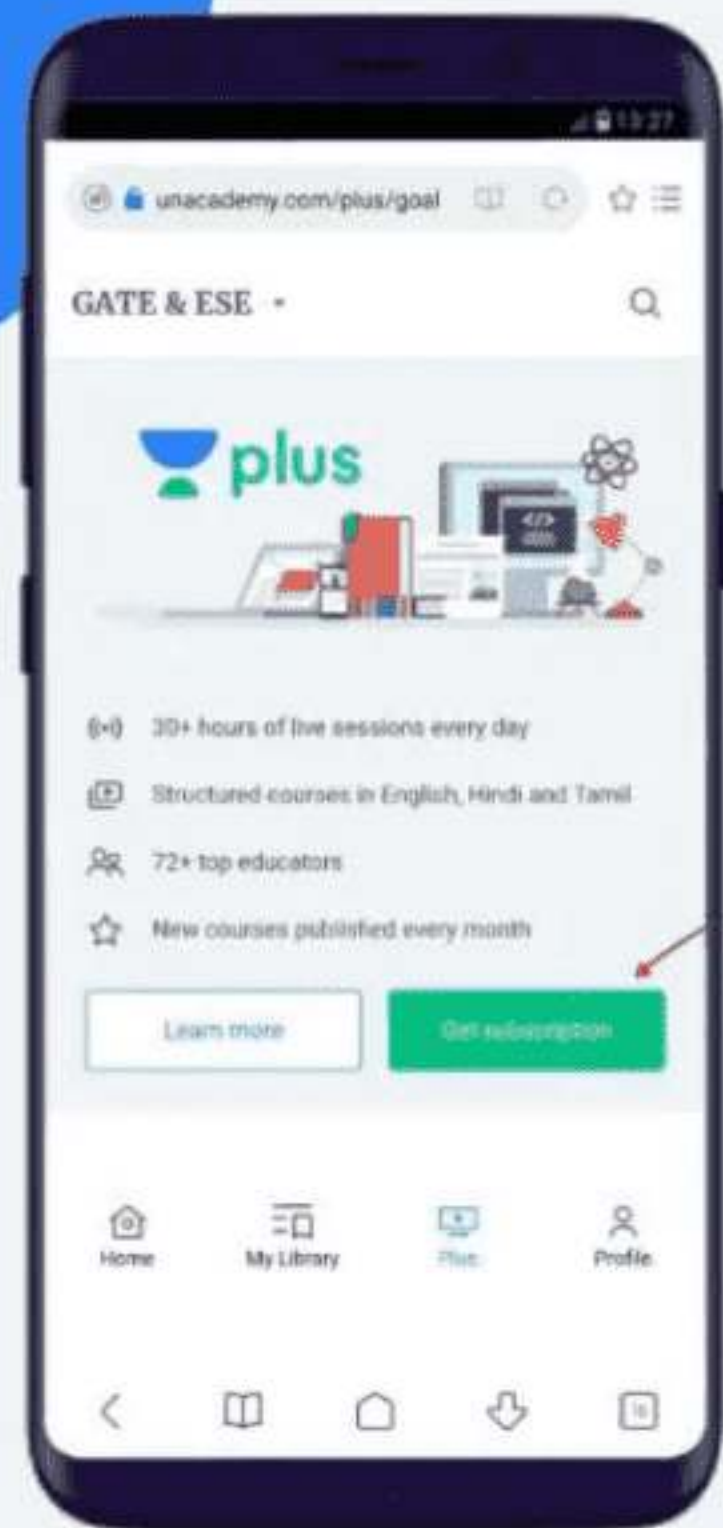
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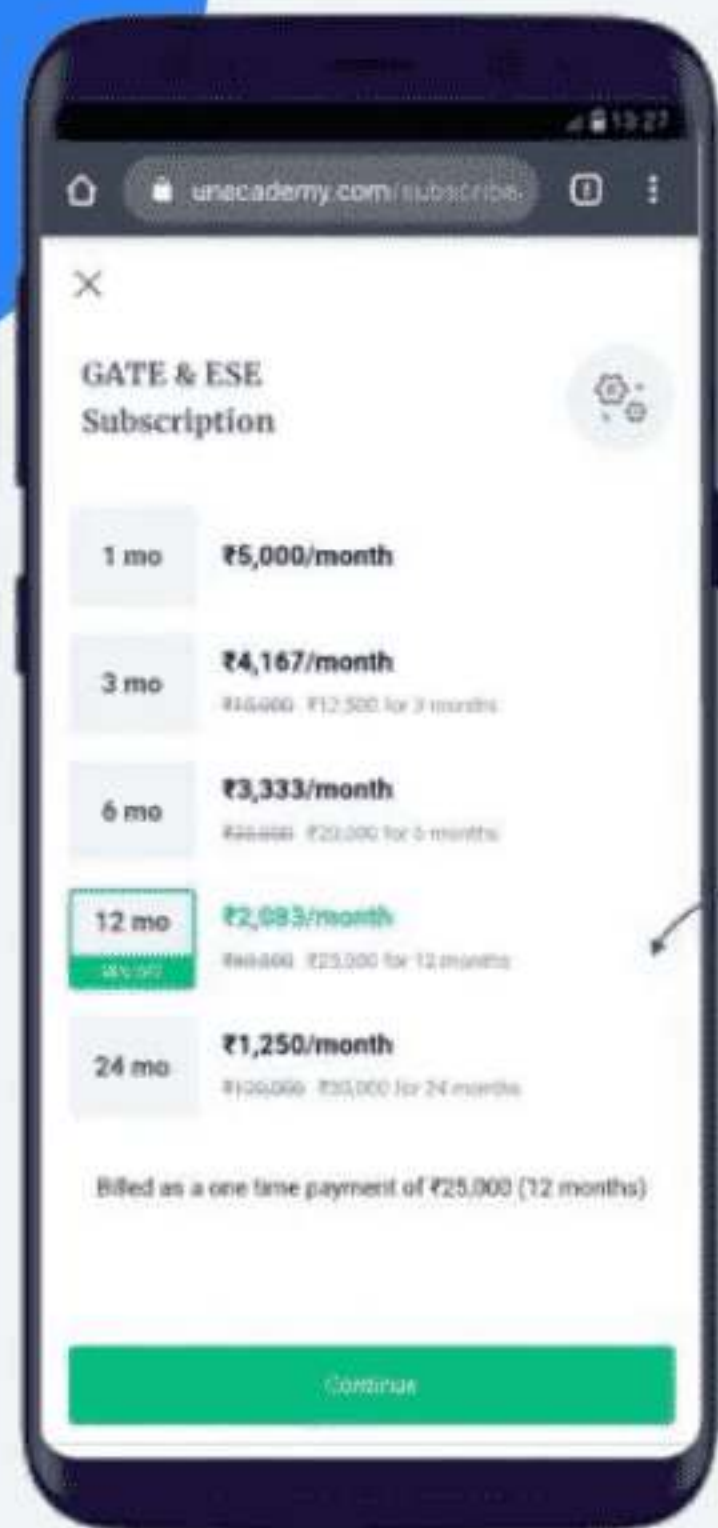
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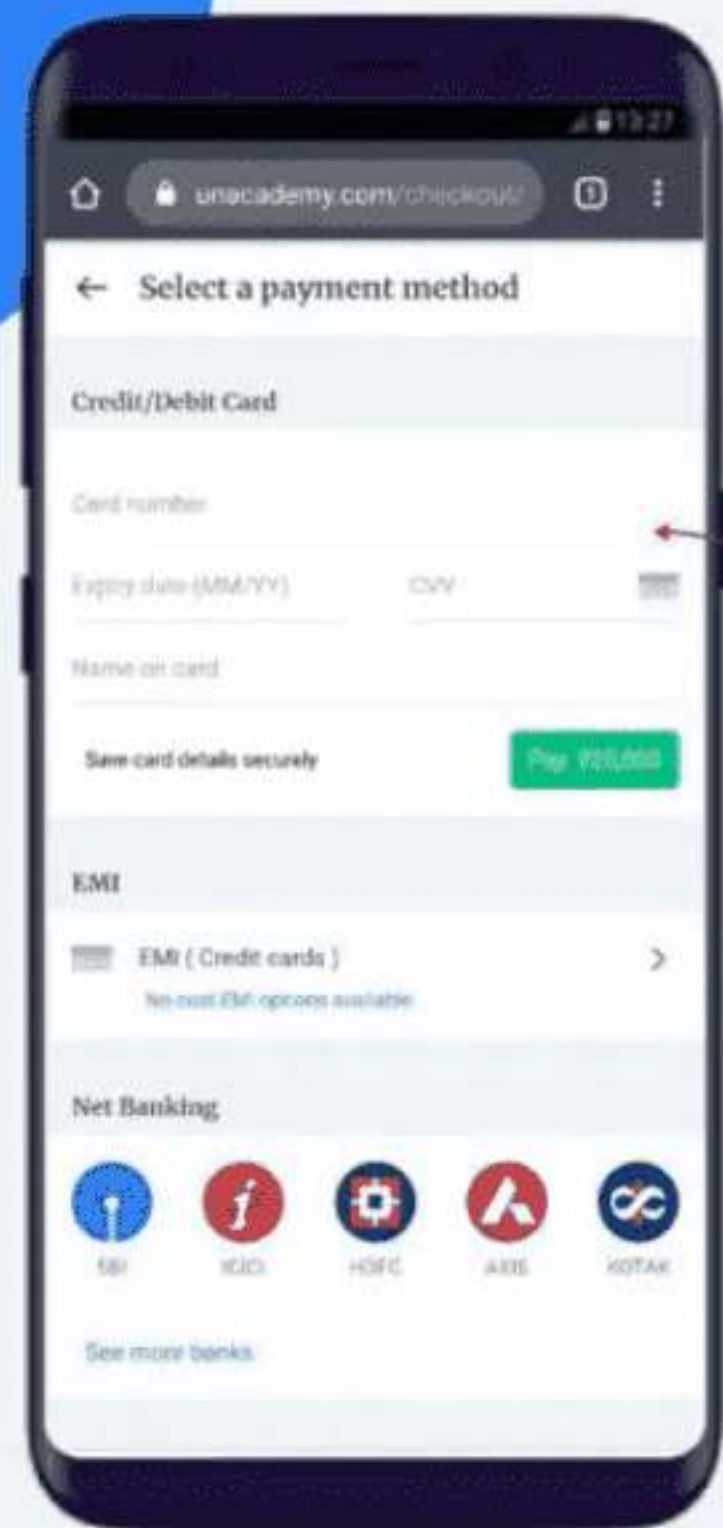
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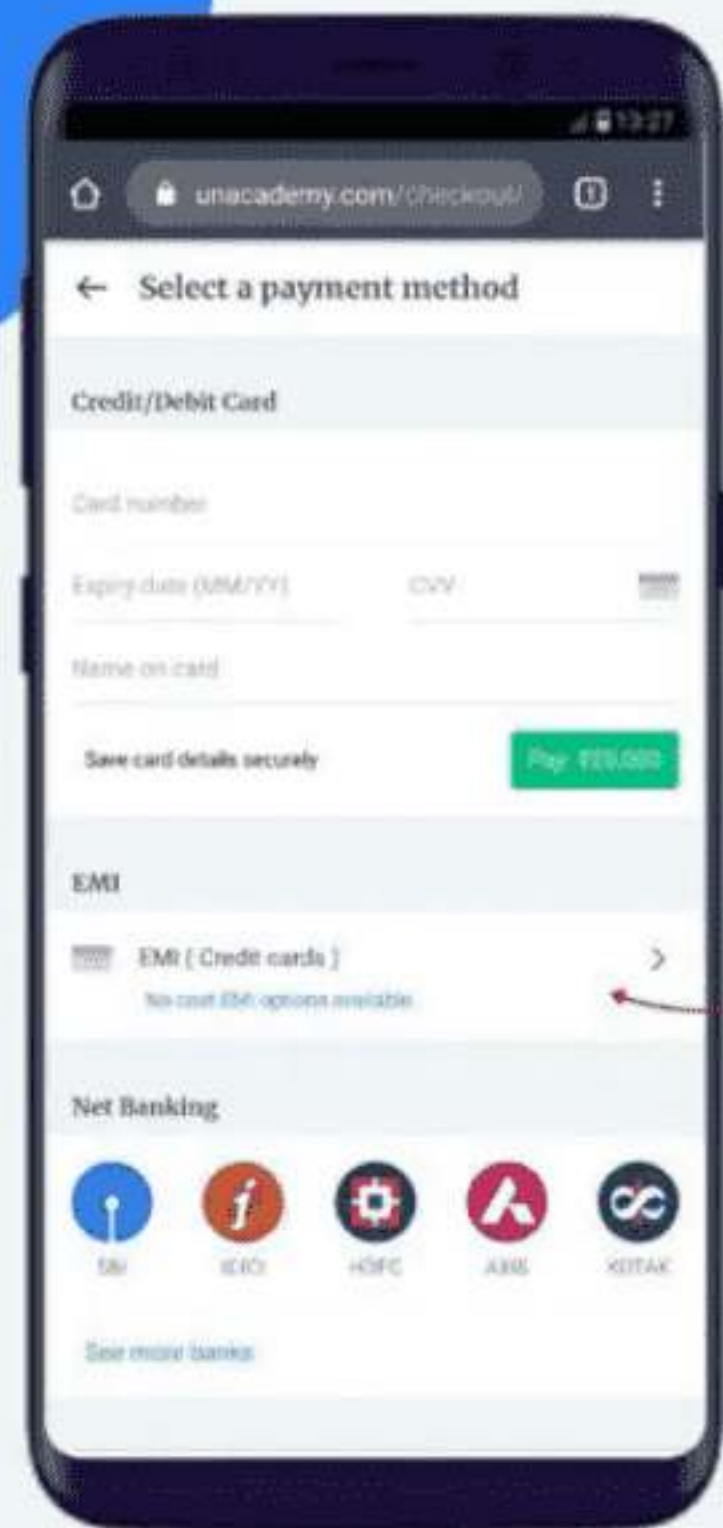
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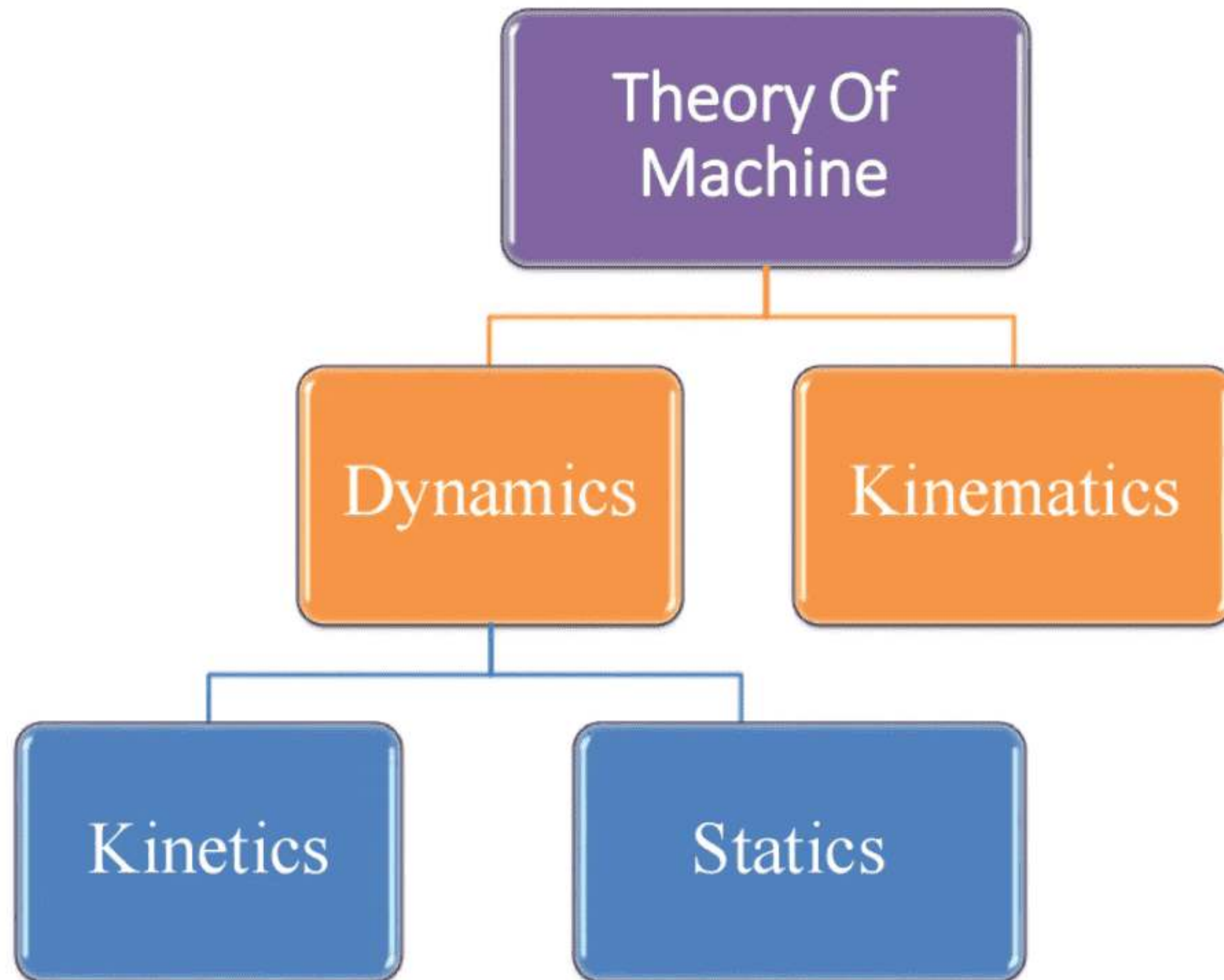
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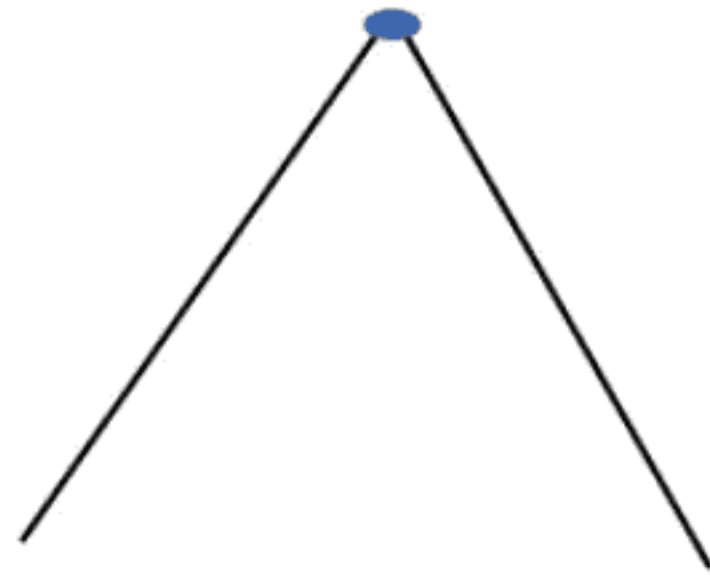
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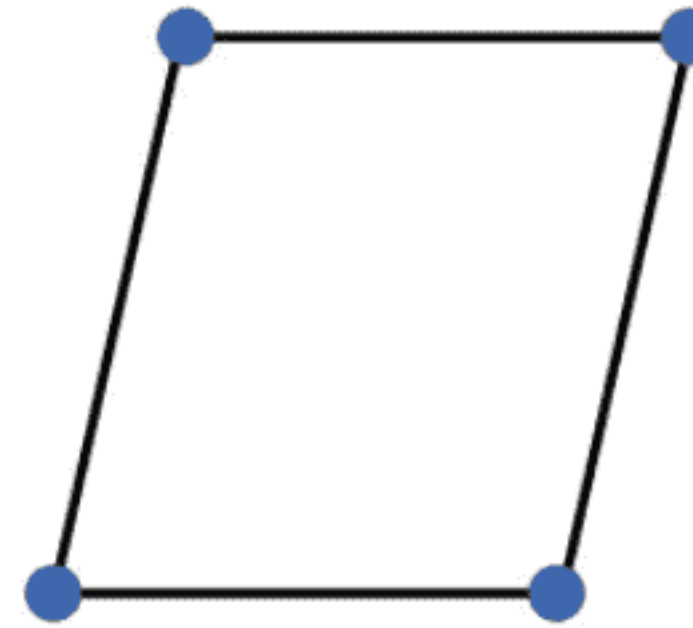
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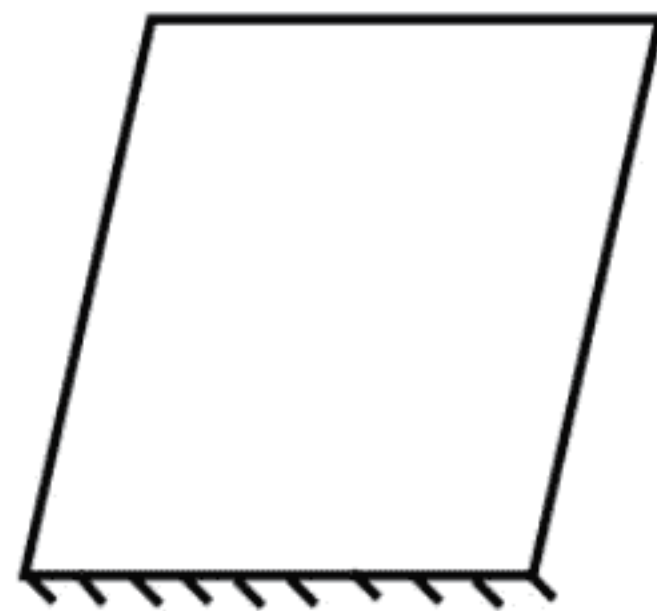
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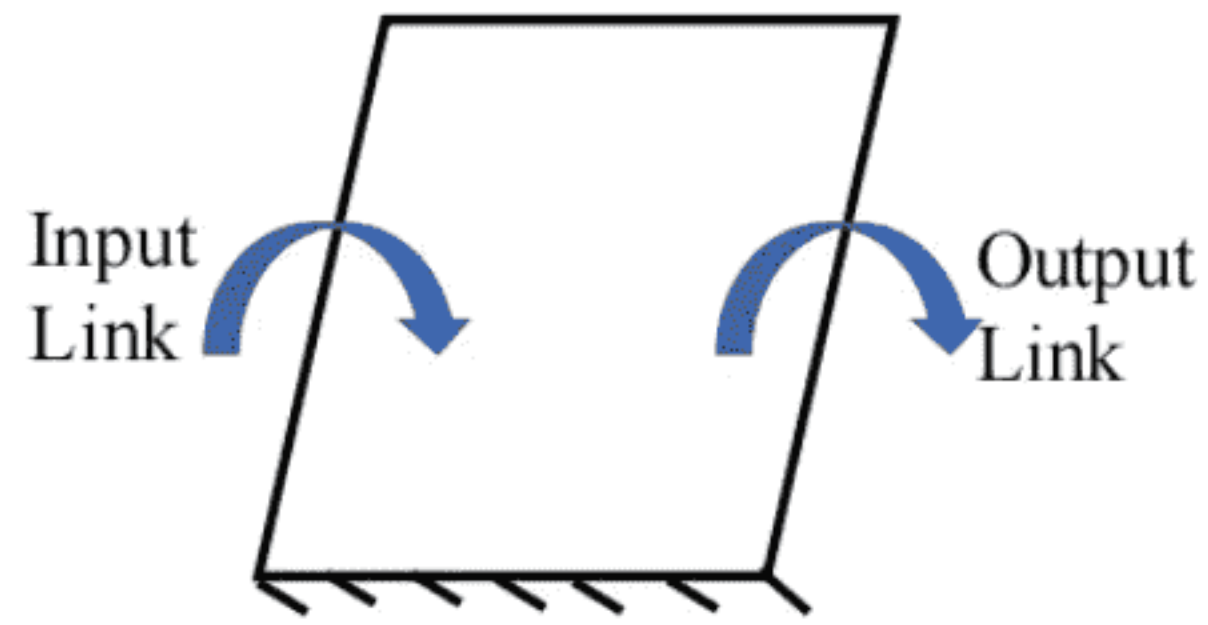
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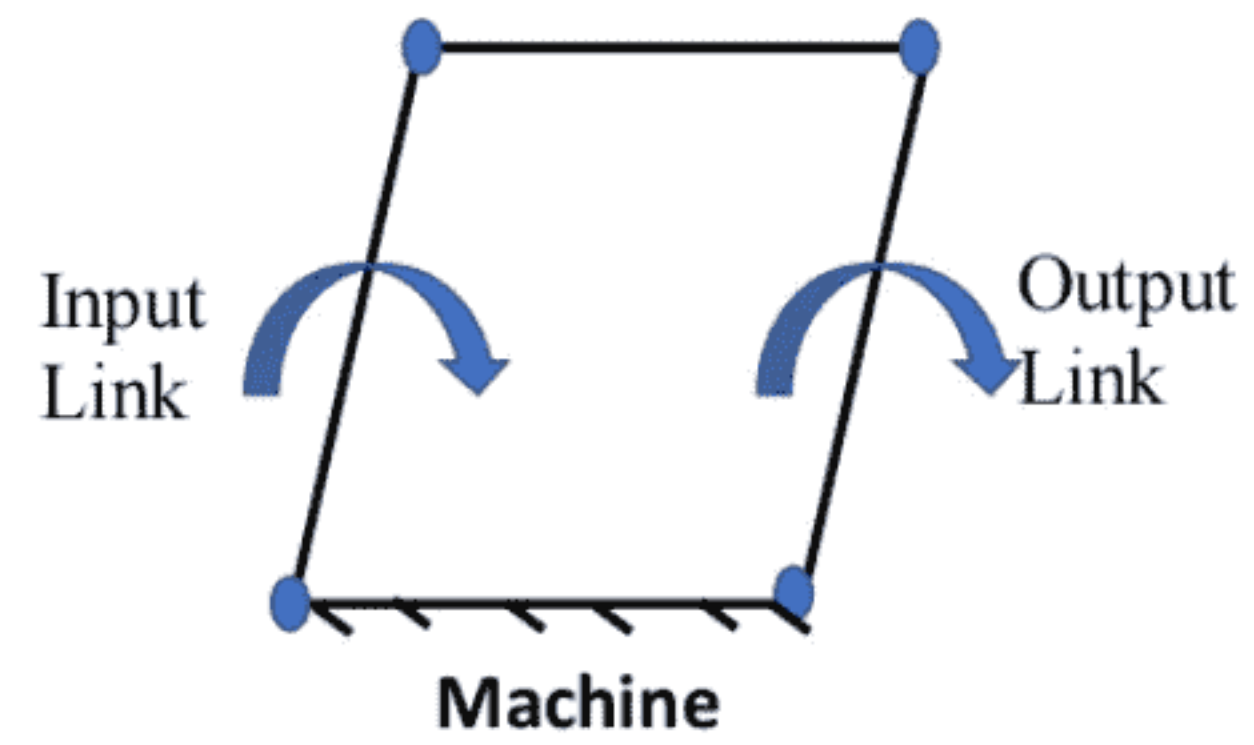


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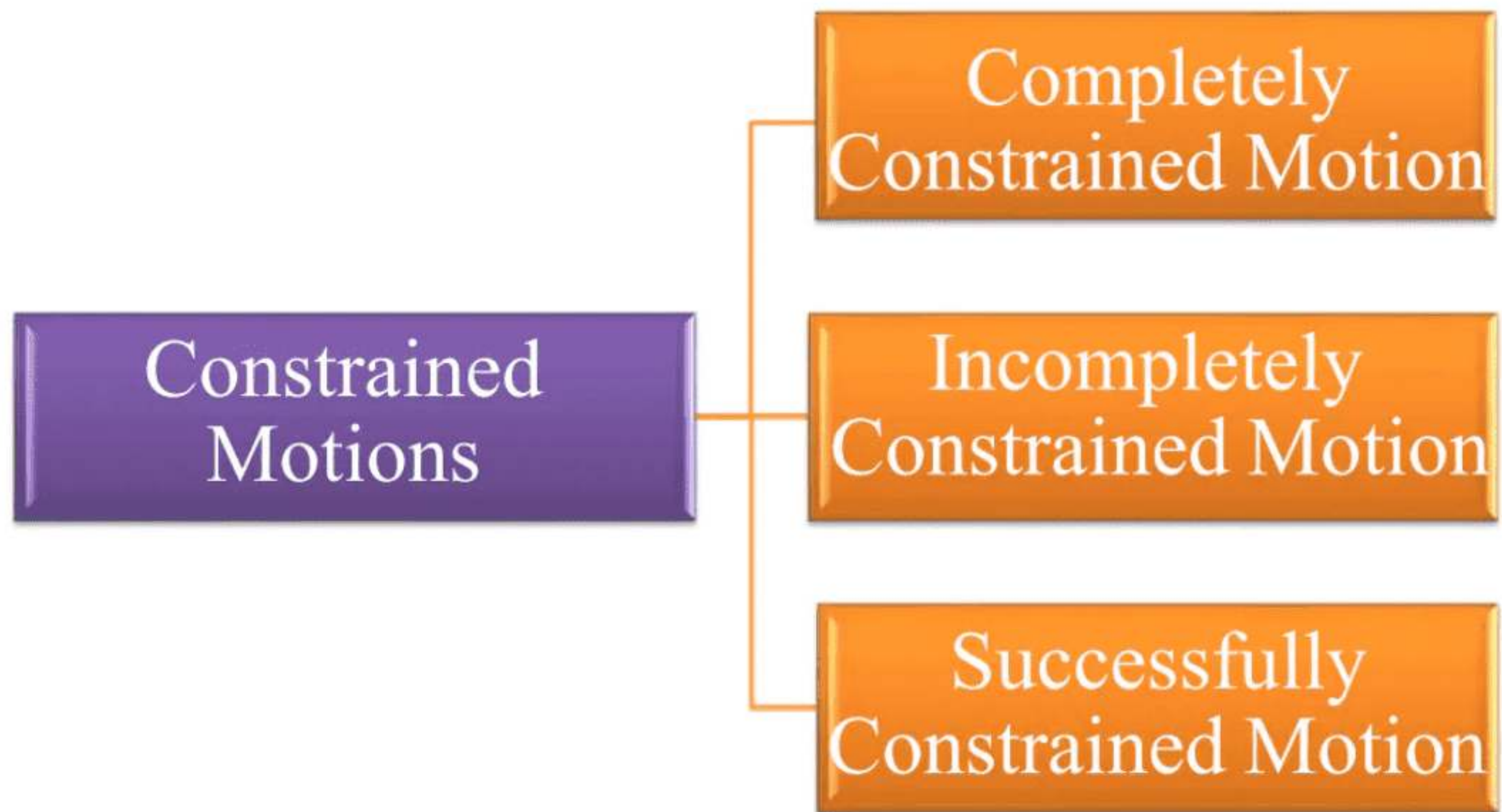


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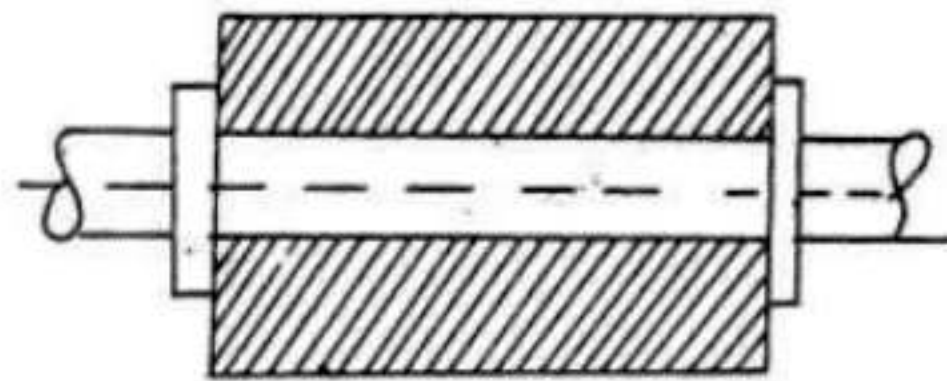
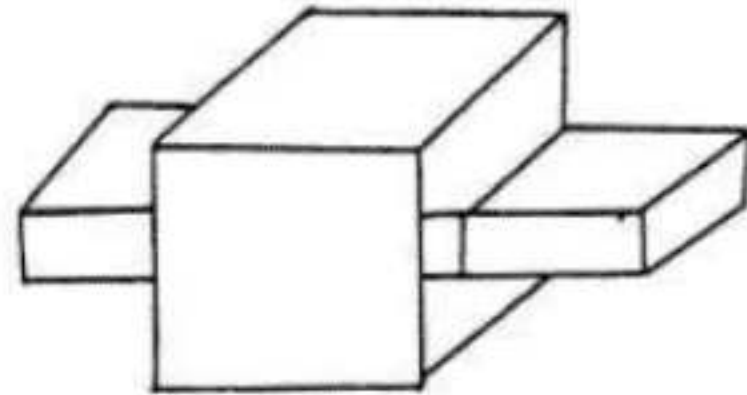
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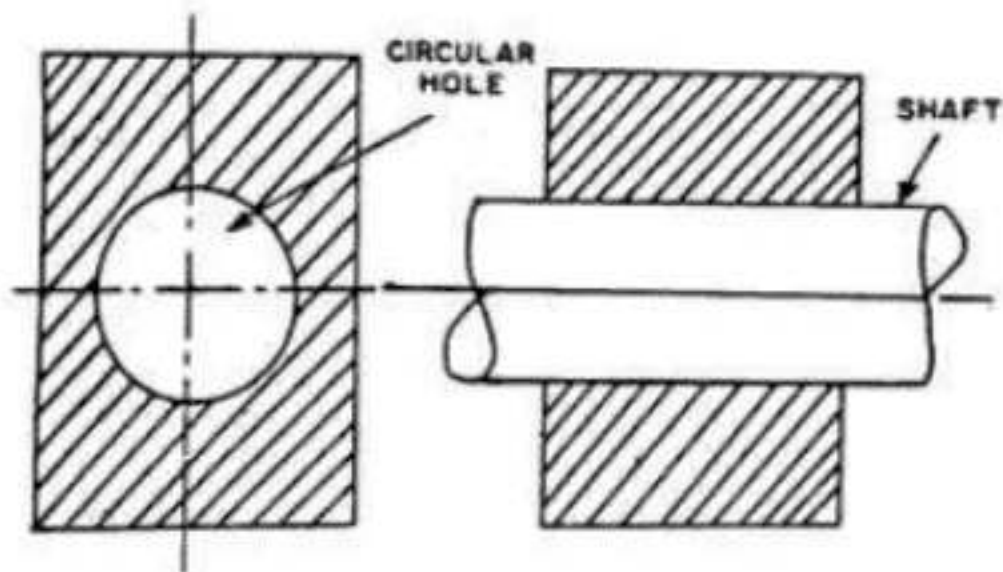
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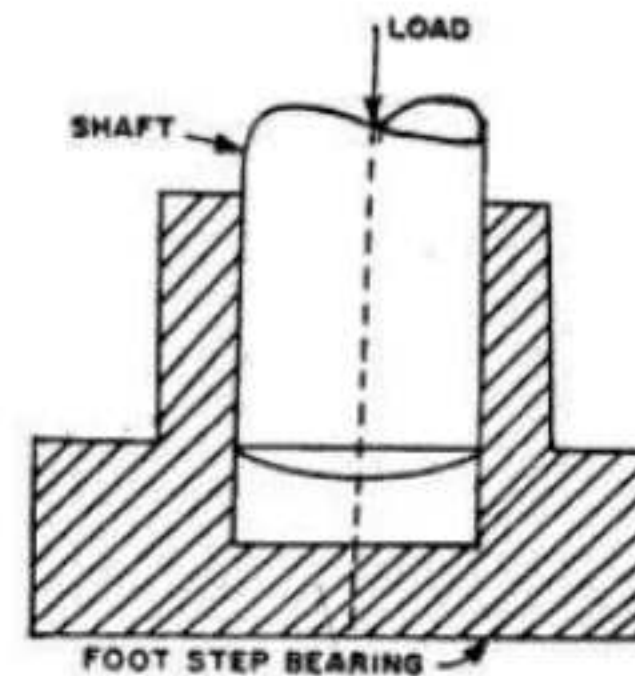
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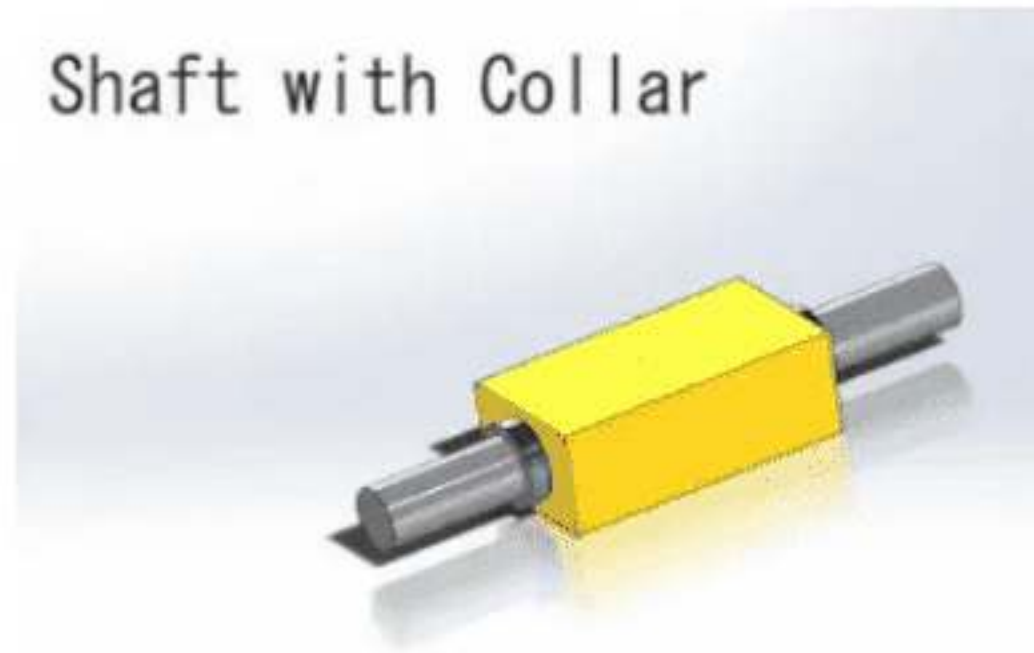
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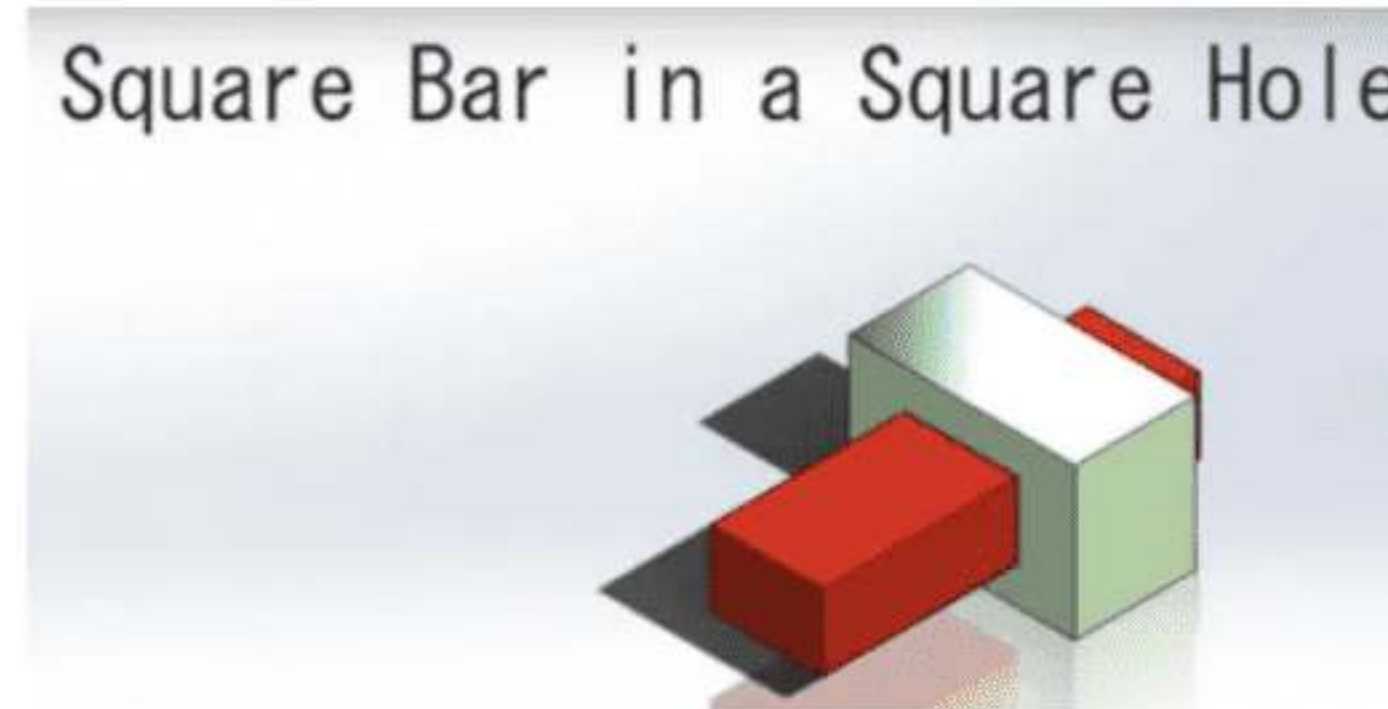
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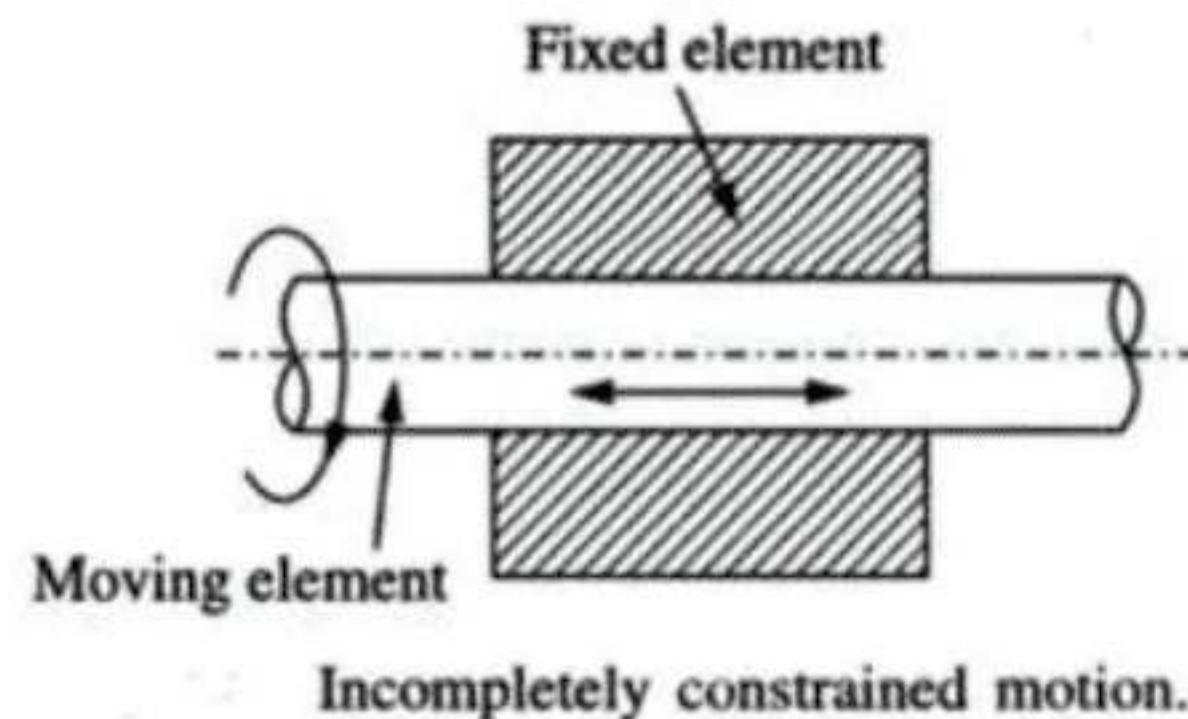


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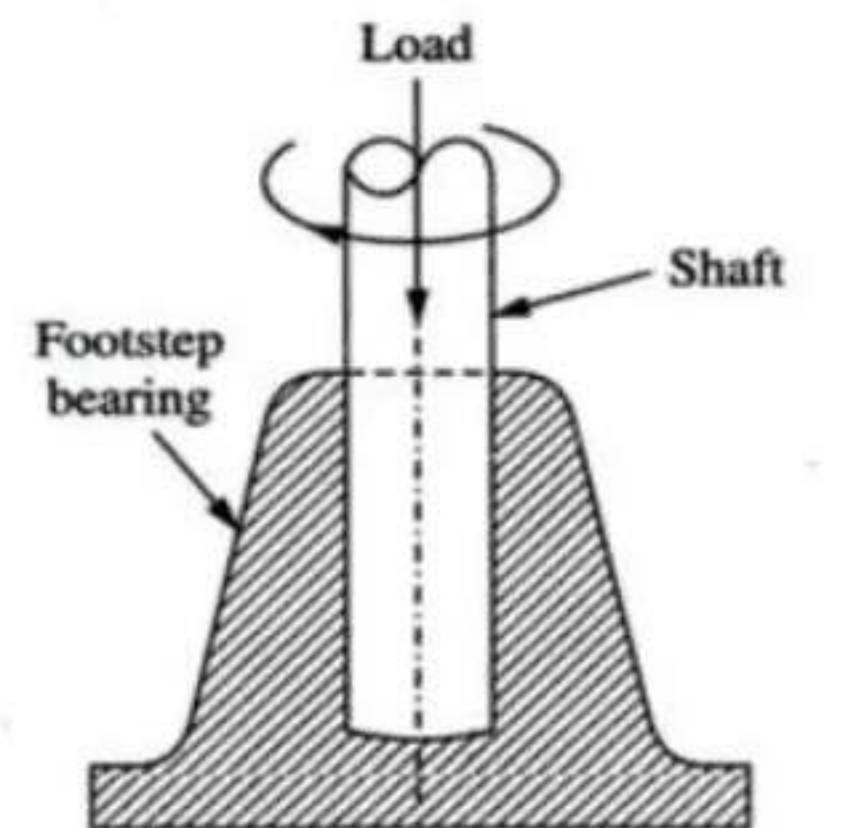
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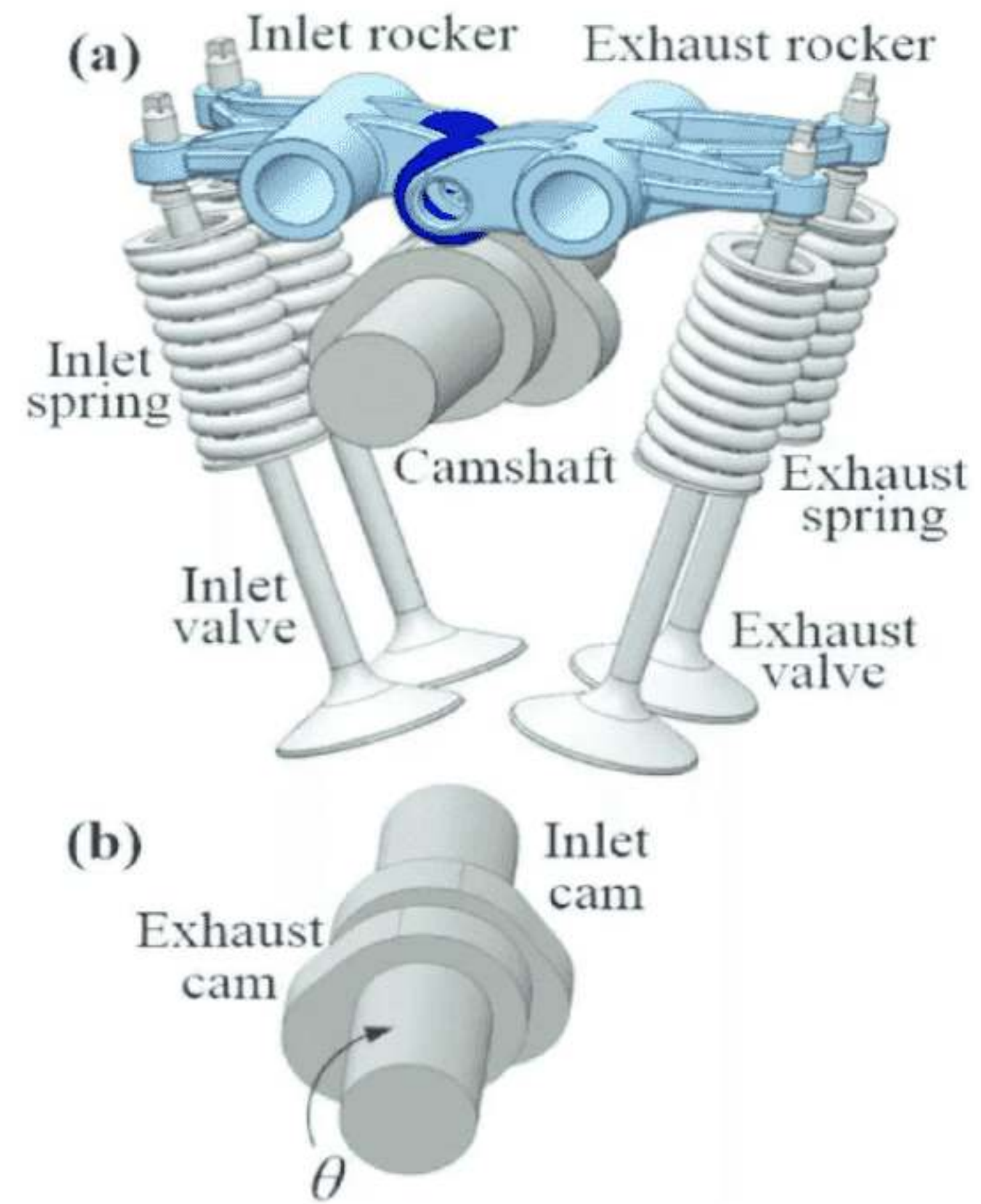
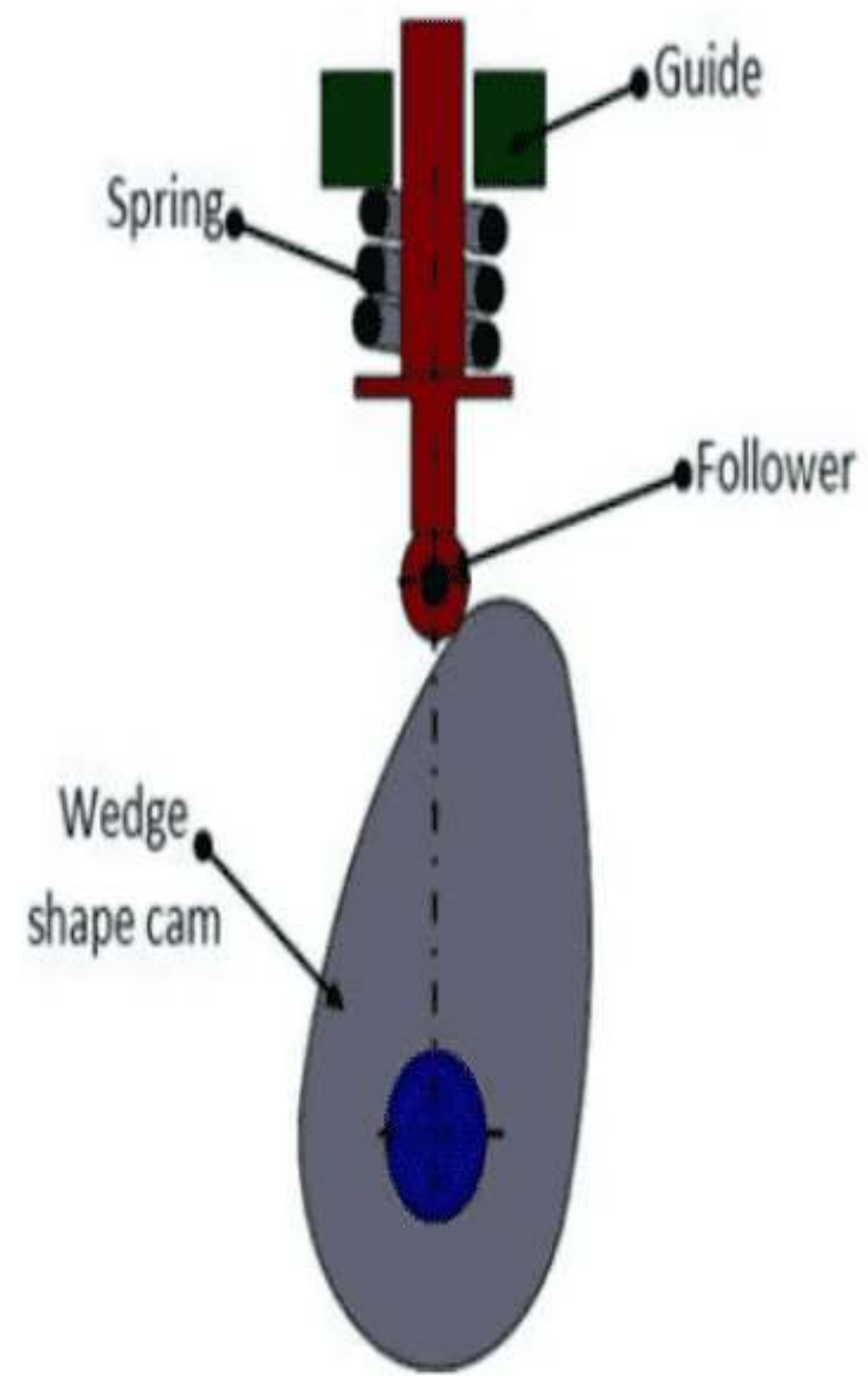


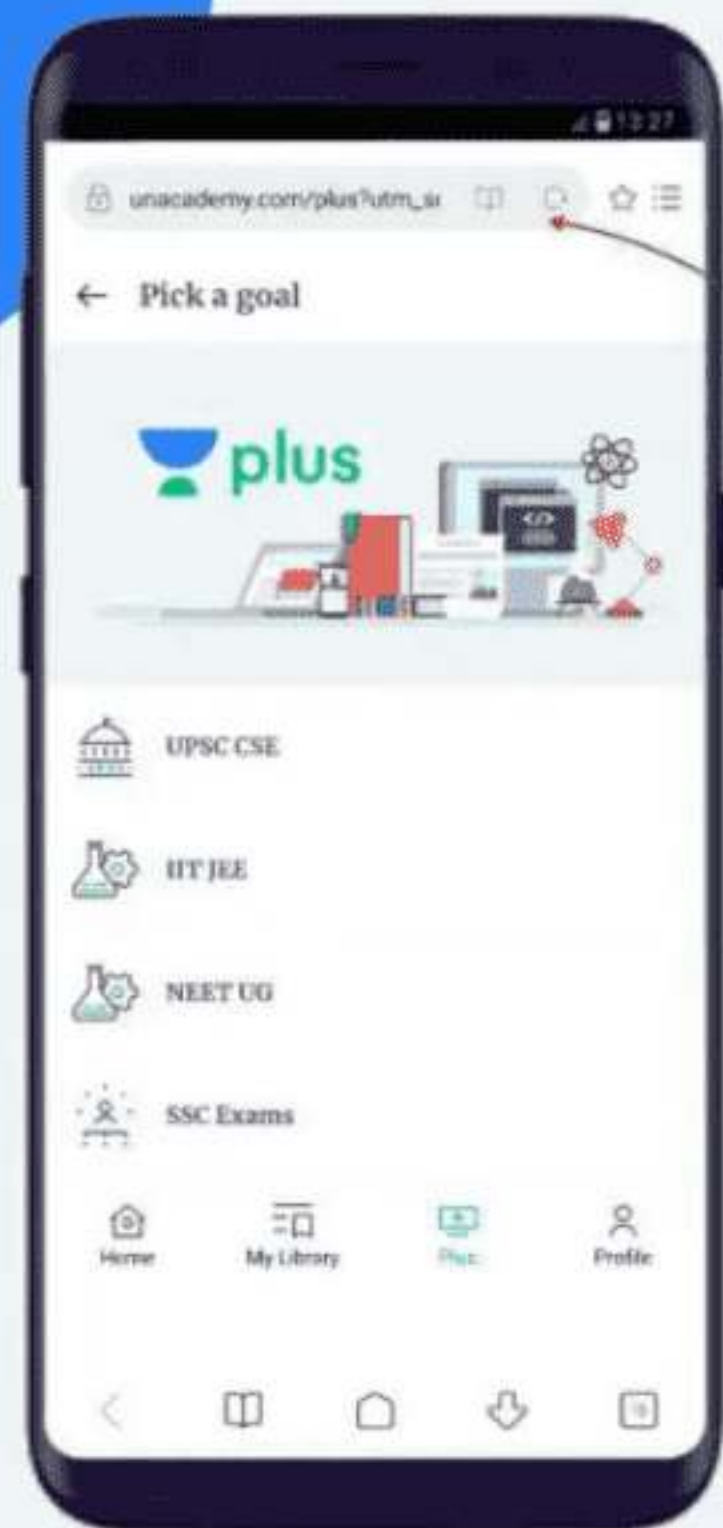
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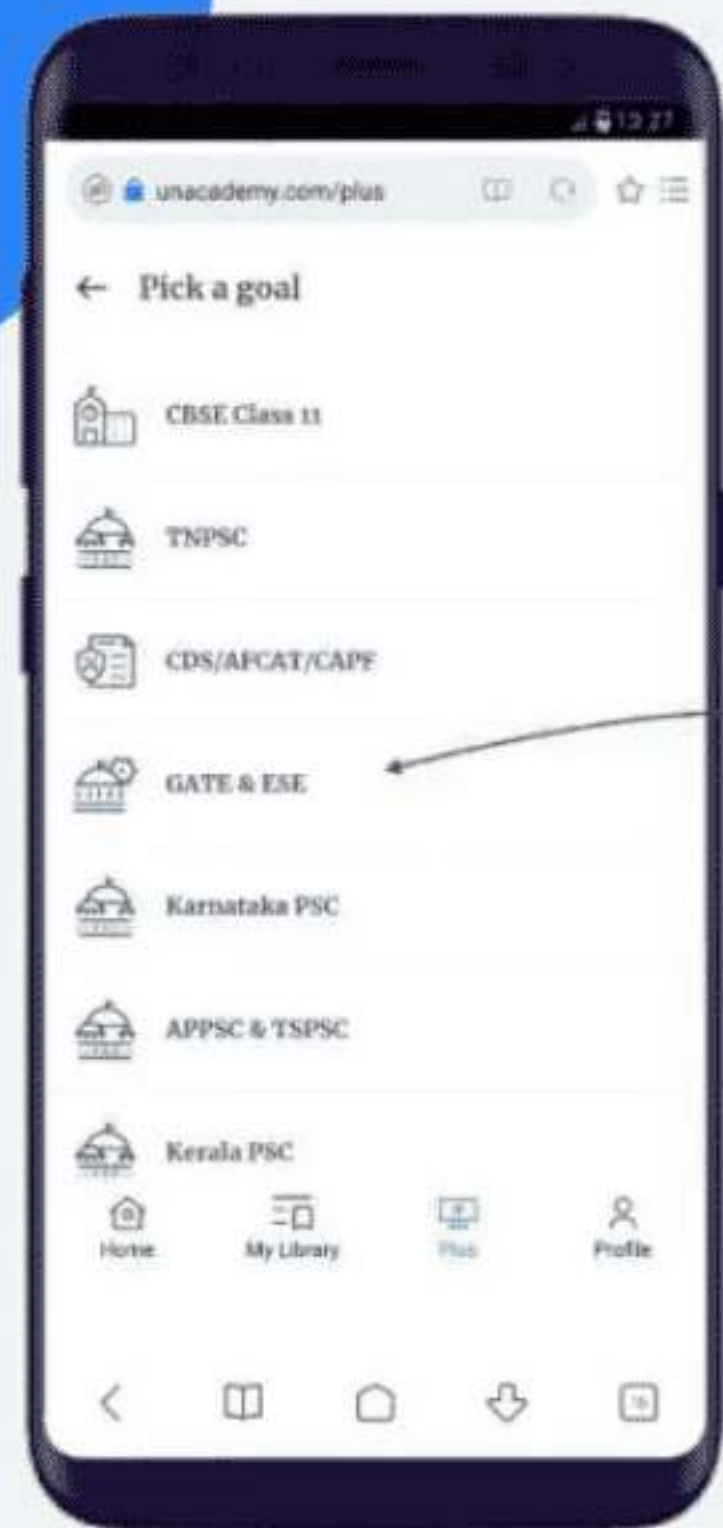


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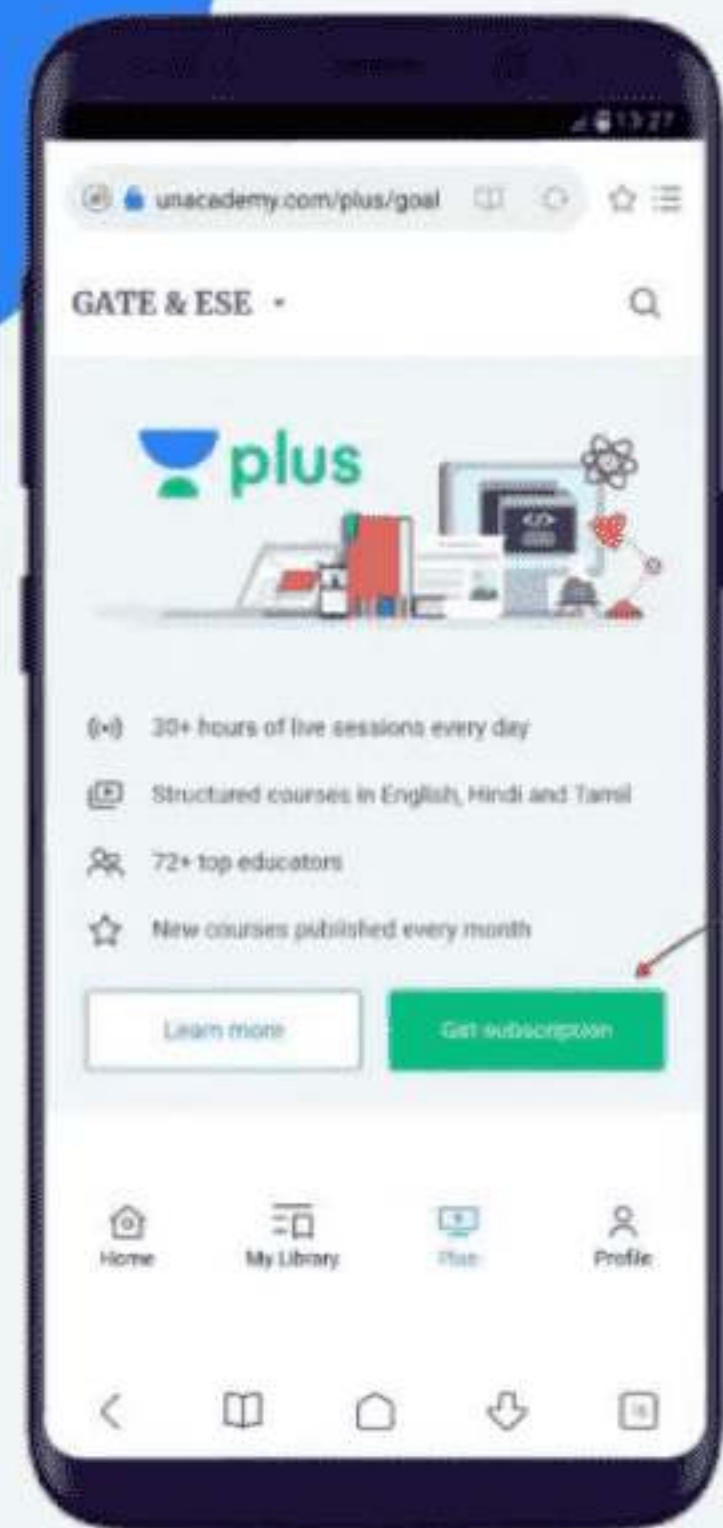
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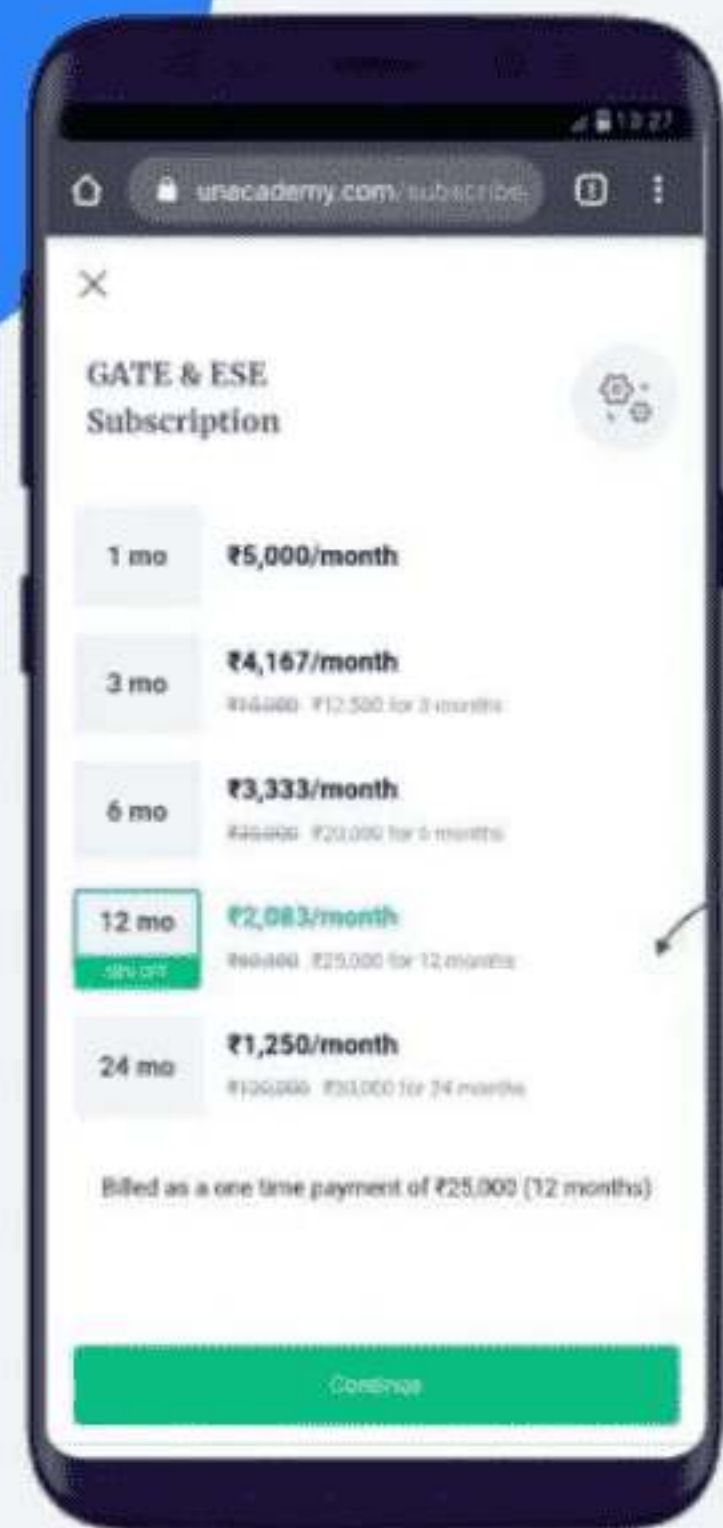
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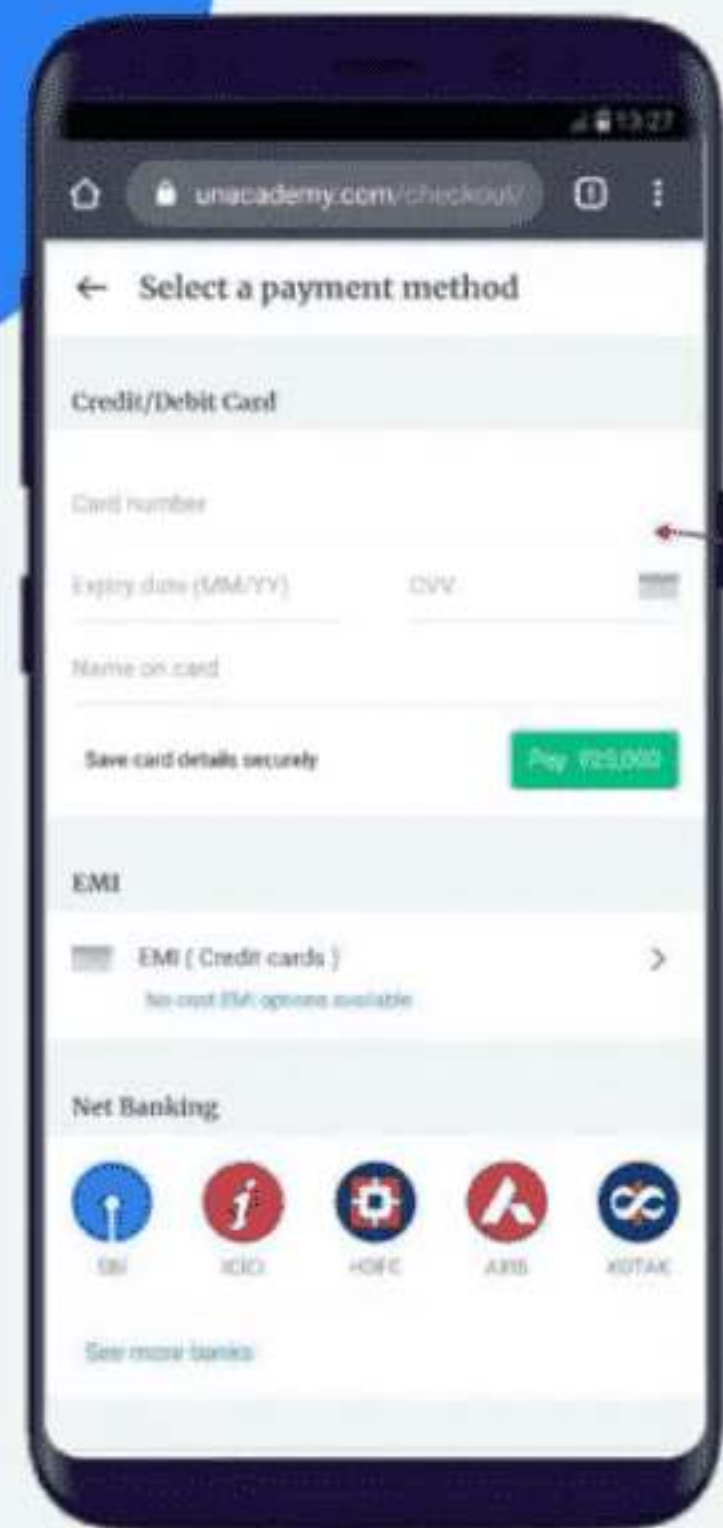
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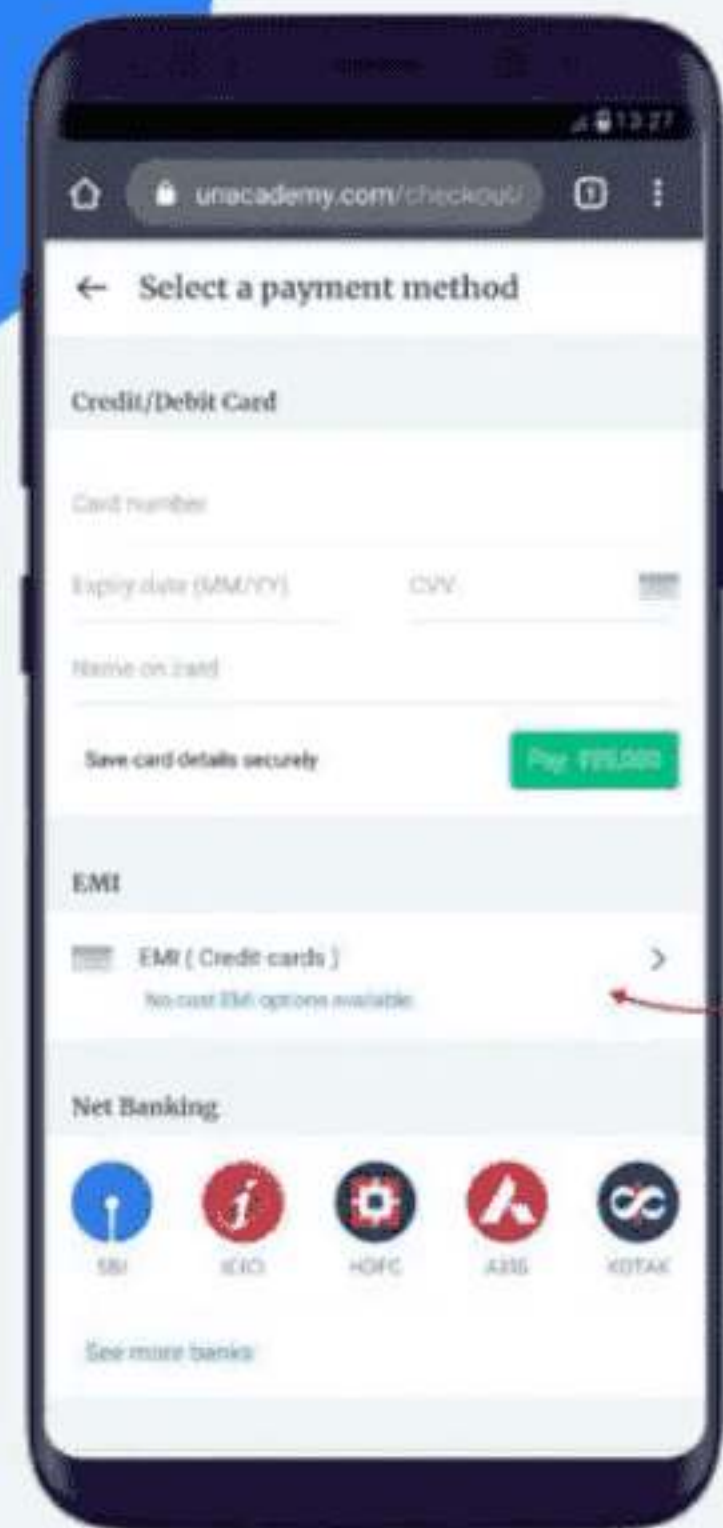
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