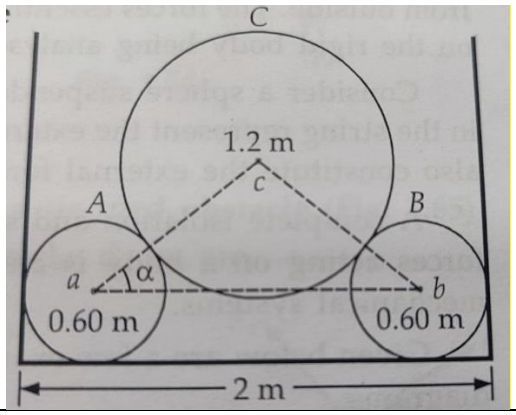
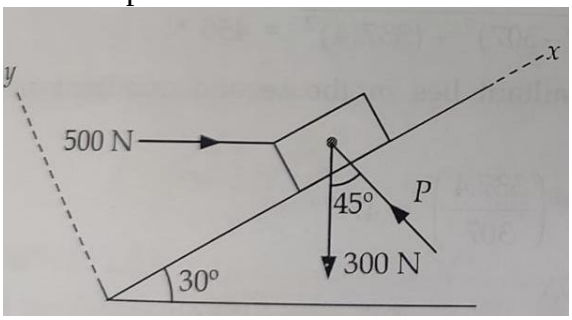
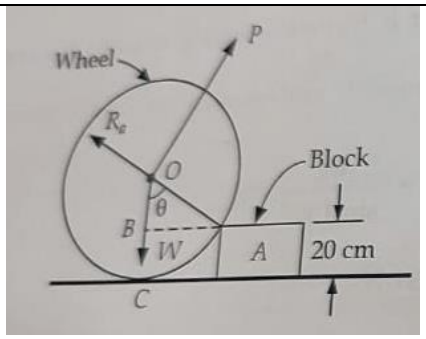
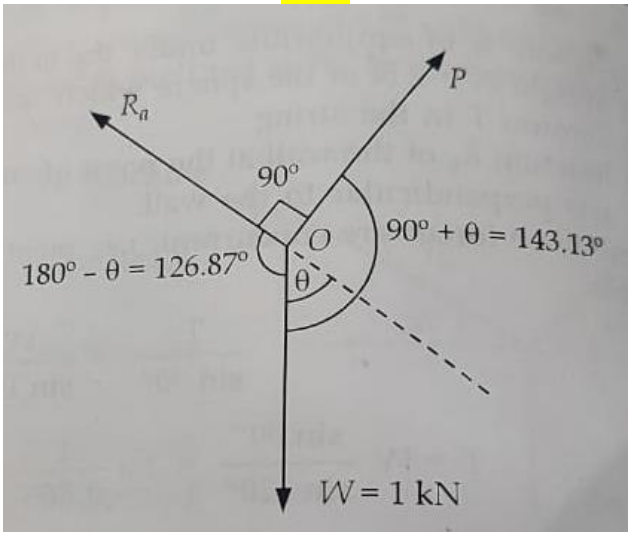
ABES ENGINEERING COLLEGE, GHAZIABAD
Department of Mechanical Engineering 2023-24
Fundamentals of Mechanical Engineering (BME-101)

Practice Sheet	**Unit I**
Topic	**Parallelogram law, Resolution of forces, Lami's theorem**
Course	**B. Tech**
Semester	**I**
Date	**27/10/2023**

Q. NO.	
1.	Write short note on Lami's theorem.
2.	Two forces, one of which is double the other has resultant of 260 N. if the direction of the larger force is reversed and the other remains unaltered, the resultant reduces to 180 N. Find the values of forces.
3.	Refer to the system of cylinders arranged in Fig. The cylinders A and B weigh 1000 N each and the weight of cylinder C is 2000 N. Determine the forces exerted at the contact points. 
4.	A block of weight 300 N is acted by a horizontal force F = 500 N and a pressure P exerted by the inclined plane as shown in Fig. If the resultant of force system lies parallel to the plane, work out the magnitude of pressure P and resultant force. 
5. (Imp.)	A uniform wheel of 50 cm diameter and 1 kN weight rests against a rigid rectangular block of thickness 20 cm (Fig.). Considering all surfaces smooth, determine: a. Least pull to be applied through the center of wheel to just turn it over the corner of the block. b. Reaction of the block.


Wheel
P
R_a
O
θ
B
W
Block
A
20 cm
C

Hint:


R_a
P
90°
O
θ
180° – θ = 126.87°
90° + θ = 143.13°
W = 1 kN