



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Faculty of
Mechanical
Engineering

**ASSIGNMENT 3
EQUILIBRIUM OF A PARTICLE**

SEMESTER II, SESSION 2016/2017

COURSE CODE : SKMM1203

COURSE NAME : STATICS (STATIK)

Name:

Matrix Number:

Q1: Three cables are joined at the junction ring C as shown in Figure 1. Determine the tensions in cables AC and BC caused by the weight of the 30 kg cylinder.

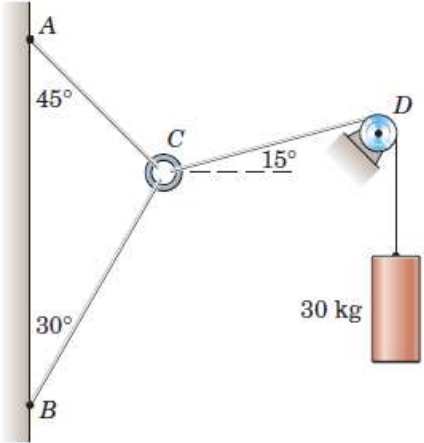


Figure 1

Q2: The following system is held in equilibrium by the mass supported at A and the angle θ of the connecting cord. Draw the free-body diagram for the connecting knot D.

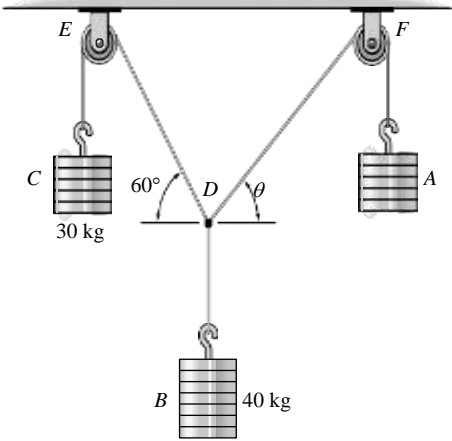


Figure 2

Q3: A cable supported at A and B carries a load 10 kN at D and a load of W at C as shown in Figure 3. Determine the weight of load W so that cable CD remains horizontal.

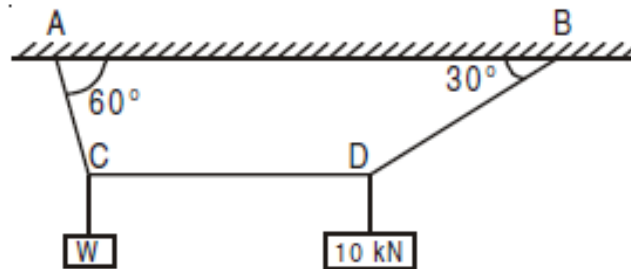


Figure 3

Q4: Three bars, hinged at A and D and pinned at B and C as shown in Figure 4 formed a four-linked mechanism. Determine the magnitude of force P that will prevent movement of bars.

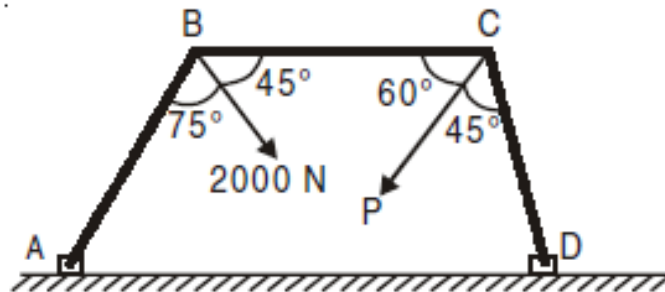


Figure 4

Q5: A connected flexible cables shown in Figure 5 is supporting two vertical loads of 200 N and 250 N at points B and D. Determine the forces acting in cable AB, BC, BD and DE.

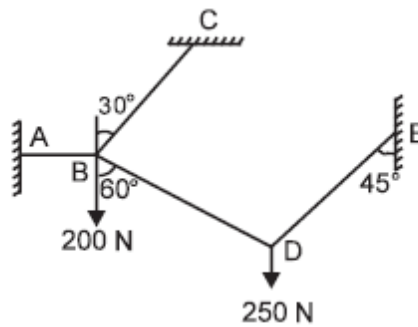


Figure 5

Q6: The 30-kg pipe shown in Figure 6 is supported at A by a system of five cords. Draw the free-body diagrams for the rings at A and B and determine the forces acting in cable AB, BC, BD and AE when the system is in equilibrium.

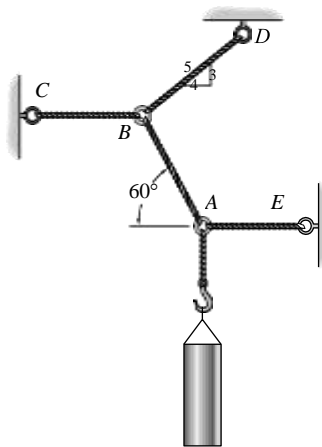


Figure 6