AToz

國立臺北科技大學 108 學年度碩士班招生考試

系所組別：1501 自動化科技研究所
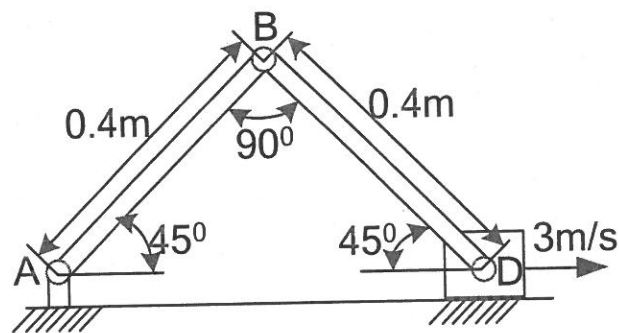
第二節　工程力學　試題（選考）

注意事項：

1. 本試題共五題，每題 20 分，共 100 分。
2. 不必抄題，作答時請將試題題號及答案依照順序寫在答案卷上。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

一、The Block D shown in the following figure moves with a speed of 3 m/s. Determine the angular velocities of links BD and AB, and the velocity of point B at the instant shown. (20%)


二、The 100kg block A is released from rest. If the mass of the pulleys and the cord is neglected. Determine the speed of the 20-kg block B in 2s. (20%)
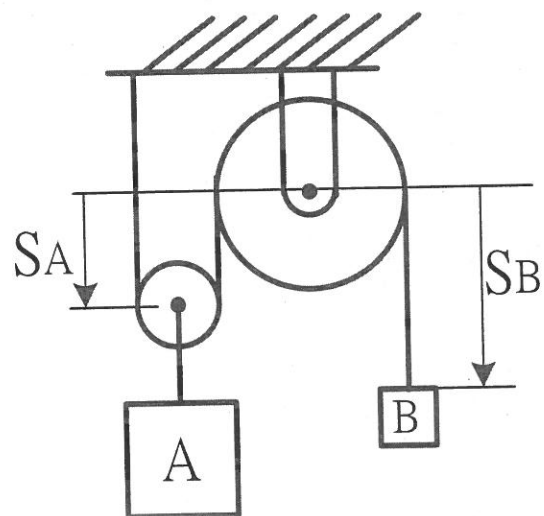
三、The frame shown supports part of the roof of a small building. Knowing that the tension in the cable is 150kN, determine the reaction at the fixed end E. (20%)
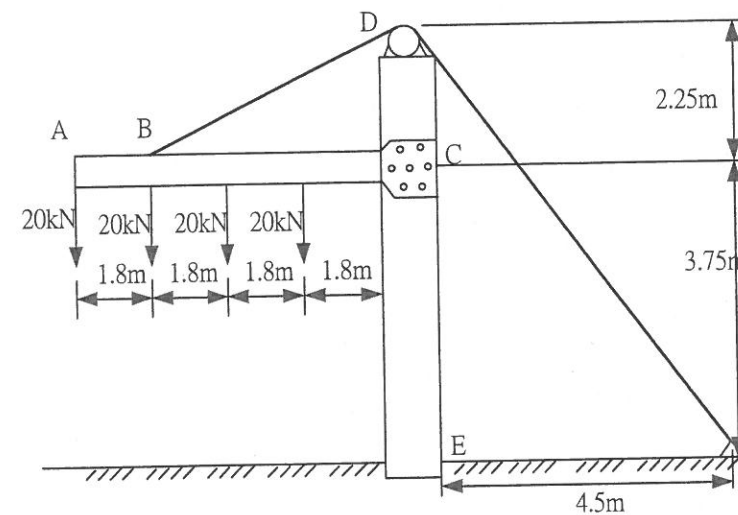
四、Three loads are applied to a beam as shown in the following figure. The beam is supported by a roller at A and by a pin at B. Neglecting the weight of the beam, determine the reactions at A and B. (20%)
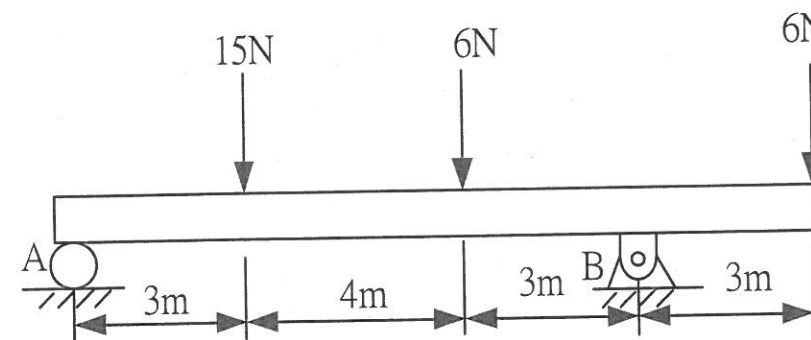
注意：背面尚有試題

五、A cord is wrapped around a wheel which is initially at rest as shown in the following figure. If a force is applied to the cord and gives it an acceleration a=4t(m/s^2), where t is in seconds, (a) Compute the angular velocity of the wheel as a function of time, (b) Compute the angular position $\Theta(t)$ of line OP as a function of time in radians. (20%)