

# 元智大學 107 學年度 碩士班 招生試題卷

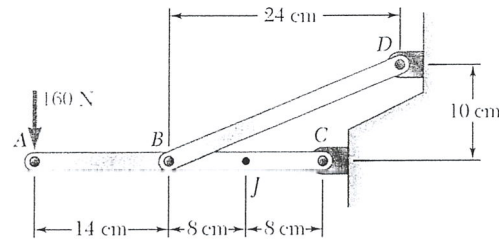
系(所)別：機械工程學系碩士班 組別：不分組

科目：應用力學

用紙第 / 頁共 2 頁

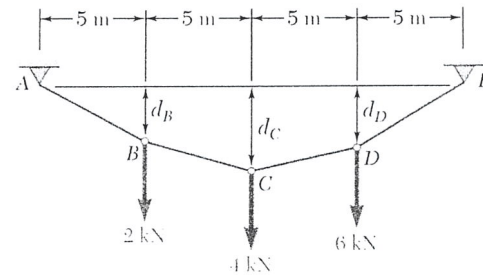
● 不可使用電子計算機

1. Determine the force in member BD and the components of the reaction at C. (25 %)



2. Three loads are suspended as shown from the cable ABCDE. Knowing that  $d_c = 4$  m determine

- (a) the components of the reaction at E (10 %) (b) the maximum tension in the cable. (15 %)



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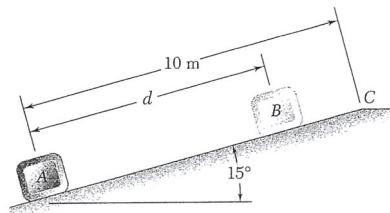
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3. A package is projected 10 m up a  $15^\circ$  incline so that it just reaches the top of the incline with zero velocity. Knowing that the coefficient of the kinetic friction between the package and incline is 0.12, determine (a) the initial velocity of the package at A (10%) (b) the velocity of the package as it returns to its original position. (15%)



4. A 6-kg uniform plate rotates about A in a vertical plane under the combined effect of gravity and of the vertical force P. Knowing that at the instant shown the plate has an angular velocity of 20 rad/s and an angular acceleration of  $30 \text{ rad/s}^2$  both counterclockwise, determine (a) the force P (10%) (b) the components of the reaction at A. (15%). Moment of inertia of the plate

$$I = \frac{m}{12} (0.25^2 + 0.5^2) \text{ where } m \text{ is the mass of the plate.}$$

