淡江大學 98 學年度轉學生招生考試試題

系別：航空太空工程學系三年級　　科目：工程力學(含靜力學、動力學)

准帶項目請打「V」	
V	計 算 機

本試題共 4 大題， 1 頁

1. The 200 *lb* block is at rest on the plane shown in *Figure* 1. The coefficient of friction between the block and the plane is 0.45. The force *P* is applied gradually (逐漸) until the block begins to move. If the block is to neither tip (傾斜) nor slide, determine the maximum force *P* that can be applied. **(20%)**

2. Determine the moment of inertia of the composite area about axis A-A as shown in *Figure* 2. **(20%)**

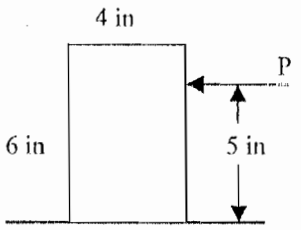

Figure 1.

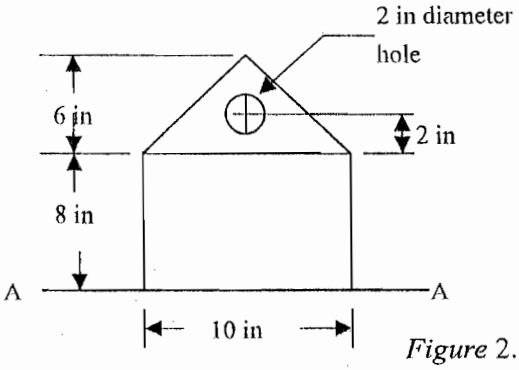

Figure 2.

3. The 20-*kg* slender rod shown in *Figure* 3 is rotating in the vertical plane, and at the instant shown it has an angular velocity of $\vec{\omega} = 5\,rad/s$. Determine the rod's **angular acceleration** and the **horizontal** and **vertical** components of reaction at the pin at this instant. **(35%)**

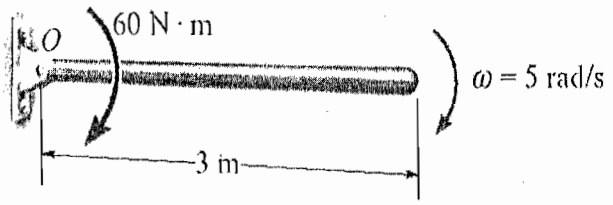

Figure 3.

4. Find all member (bar) forces of the following plane truss as shown in *Figure* 4. **(25%)**

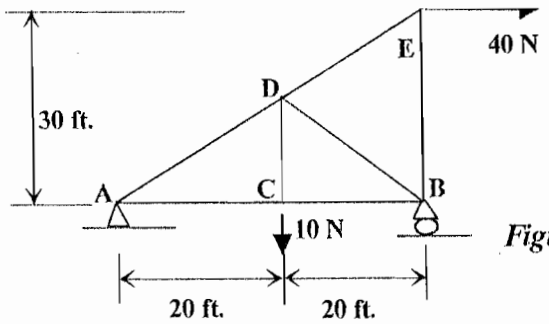

Figure 4