國立交通大學 95 學年度碩士班考試入學試題

科目：流體力學(3092) (308)　　考試日期：95 年 3 月 11 日 第 2 節

系所班別：土木工程學系　　組別：土木所丙組在職生、一般生 第 1 頁，共 2 頁

＊＊作答前請先核對試題、答案卷(試卷)與准考證之所組別與考科是否相符！ 【可使用計算機】

1. Water flows steadily through the large tanks shown in Fig. 1. Determine the water depth, h_A. (25%)

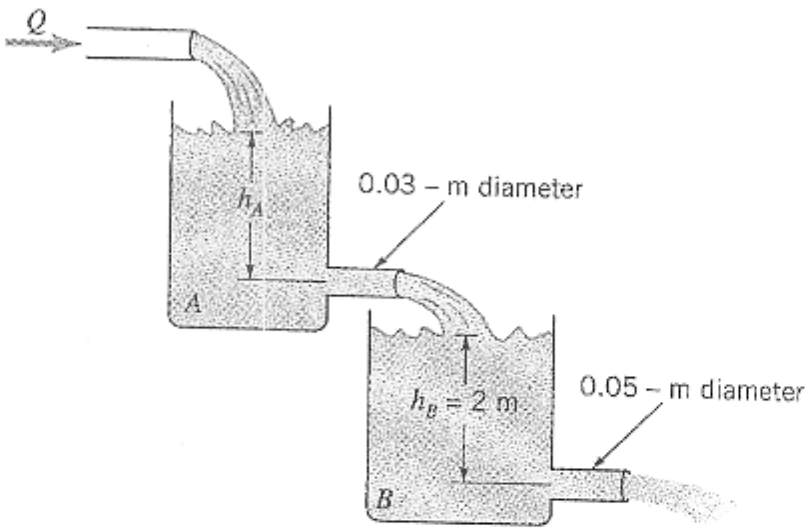

Figure 1

2. The fluid velocity along the x axis shown in Fig. 2 varies from 12 m/s at point A to 36 m/s at point B. It is also known that the velocity is a linear function of distance along the streamline. Determine the acceleration at points A, B, and C. Assume steady flow. (25%)

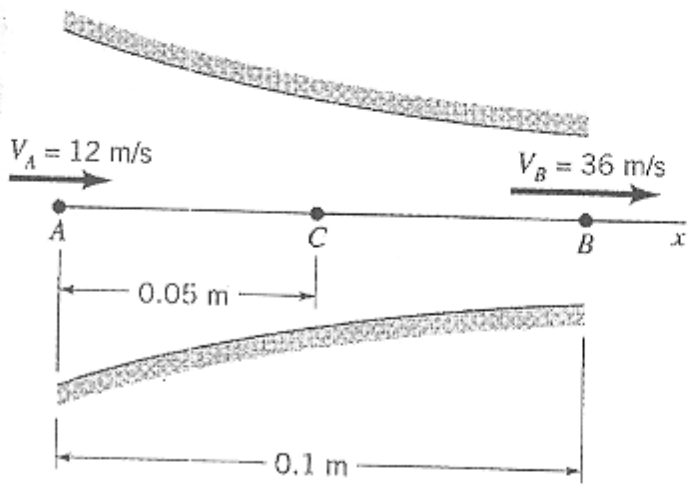

Figure 2

國立交通大學 95 學年度碩士班考試入學試題

科目：流體力學(3092) (308)　　考試日期：95 年 3 月 11 日 第 2 節

系所班別：土木工程學系　　組別：土木所丙組在職生、一般生 第 2 頁，共 2 頁

＊＊作答前請先核對試題、答案卷(試卷)與准考證之所組別與考科是否相符！ 【可使用計算機】

3. The design of a river model is to be based on Froude number similarity, and a river depth of 4 m is to correspond to a model depth of 100 mm. Under these conditions what is the prototype velocity corresponding to a model velocity of 3 m/s? (25%)

4. An incompressible, Newtonian fluid flows steadily between two infinitely long, concentric cylinders as shown in figure. The outer cylinder is fixed, but the inner cylinder moves with a longitudinal velocity V_0 as show. For what value of V_0 will the drag on inner cylinder be zero? Assume that the flow is laminar, axisymmetric, and fully developed. (25%)