中國文化大學 100 學年度轉學招生考試

系組：機械工程學系三年級　　日期節次：7 月 27 日第 2 節 11:00-12:20

科目：材料力學　(44-169)

1. The 80-kg lamp is supported by two rods *AB* and *BC* as shown in Fig. 1. *AB* has a diameter of 10 mm and *BC* has a diameter of 8 mm.
   (1) Determine the reactions in rods *AB* and *BC*. (20%)
   (2) Determine the average normal stresses in rods *AB* and *BC*. (20%)

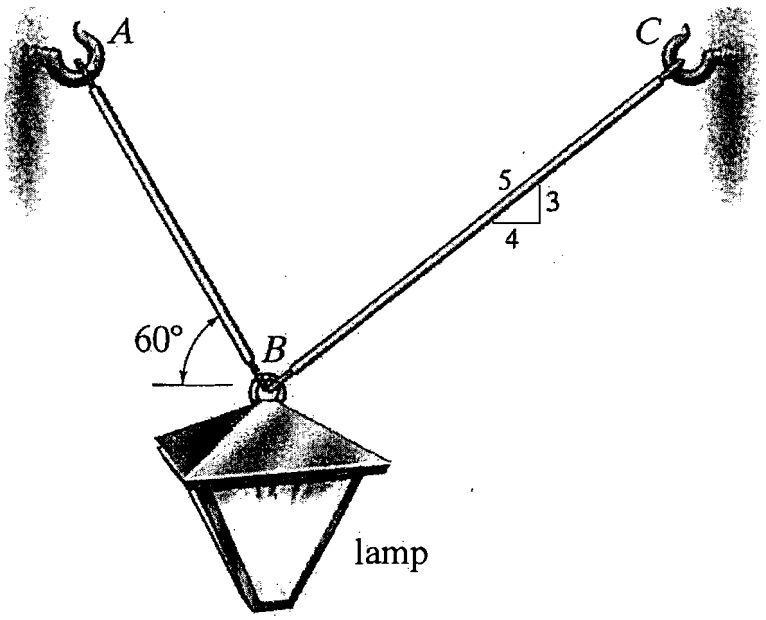

Fig. 1

2. The simply supported beam with Young's modulus E = 200 GPa is subjected to the loading as shown in Fig 2.
   (1) Determine reactions at points *P* and *Q*. (10%)
   (2) Draw the shear and moment diagrams for the beam (20%)
   (3) Determine the moment of inertia of the cross-sectional area (10%)
   (4) Determine the absolute maximum bending stress (10%)
   (5) Determine the absolute maximum shear stress (10%)

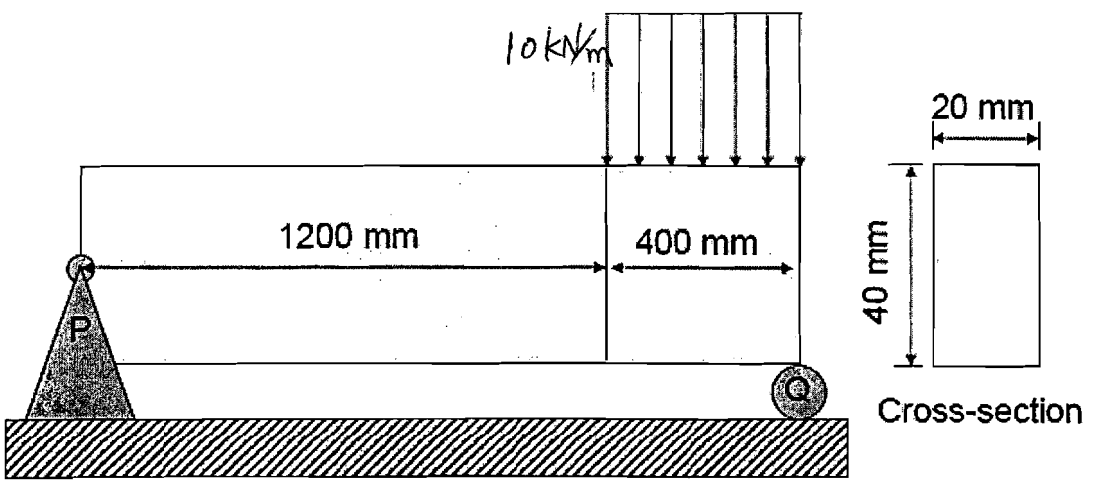

Fig. 2