**Instructions**

1. **The test contains 2 questions.**
2. **Marks will be awarded for partially correct answers also.**

**Q1**: Find the mass *m* needed to balance the 1 500-kg truck on the incline shown in Figure. Assume all pulleys

are frictionless and massless. 10 Marks



**Q2**: A long, uniform rod of length *L* and mass *M* is pivoted about a horizontal, frictionless pin passing through one

end. The rod is released from rest in a vertical position, as shown in Figure. At the instant the rod is horizontal,

find (a) its angular speed, (b) the magnitude of its angular acceleration, (c) the *x* and *y* components of the acceleration of its center of mass, and (d) the components of the reaction force at the pivot. 10 Marks

