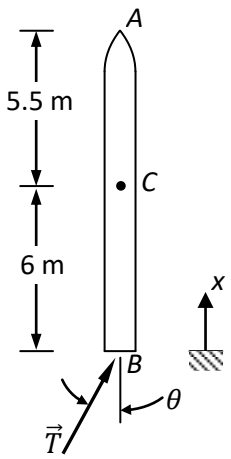
Name-Surname:
No. :

Istanbul Technical University Faculty of Aeronautics and Astronautics **20.11.2017**
2017-2018 Fall Semester
11729 DNK201E Dynamics

Quiz – 3

Problem: The mass of a rocket is $6000\ kg$, and its radius of gyration about the mass center *C* is $3.5\ m$.



- **(a)** Determine the thrust *T* that can cause an angular acceleration of $0.1\ rad/s^2$ when applied at $\theta = 5°$.
- **(b)** Calculate the absolute acceleration of point *A* by this thrust.
- **(c)** Find the point on the rocket where the magnitude of absolute acceleration is maximum. (Neglect thickness of the rocket.)
- **(d)** Find that point on the rocket where the horizontal component of the absolute acceleration vector is equal to zero. (Neglect thickness of the rocket.)
- **(e)** Is the point found in (d) the instantaneous center of rotation? Explain.