Answer Sheet – Ang. Mom.

Name: ___________________________ Student Number: __________________

Choose the single best answer to each question and then indicate your answer to each question by darkening in the appropriate circle.

A  B  C  D
1  o  o  o  o
2  o  o  o  o
3  o  o  o  o
4  o  o  o  o
Assume the acceleration of gravity is 10 m/s$^2$ and choose the single best answer to each question. Indicate your answer by filling in the appropriate circle on the attached answer sheet.

1) An object's angular momentum changes by 10 kgm$^2$/s in 0.5 seconds. What magnitude average torque acted on this object?
   A) 2.5 Nm  B) 5.0 Nm  C) 20 Nm  D) 40 Nm

2) An ice skater has a moment of inertia of 5.0 kgm$^2$ when her arms are outstretched. At this time she is spinning at 4.0 revolutions per second (rps). If she pulls in her arms and decreases her moment of inertia to 2.0 kgm$^2$, how fast will she be spinning?
   A) 10 rps  B) 7.5 rps  C) 3.3 rps  D) 2 rps

3) The bolts on a car wheel require tightening to a torque of 90 Nm. If a 30 cm long wrench is used, what is the minimum force required when the force is perpendicular to the wrench?
   A) 300 N  B) 150 N  C) 30 N  D) 15 N

4) A 2 kg lump of clay is thrown horizontally at a speed of 20 m/s. It makes an inelastic collision with a revolving door that is initially at rest. If the clay hits at a radius of 0.50 meters from the rotational axis of the door, and the door has a moment of inertia of 40 kgm$^2$, then what will be the rotational rate of the door after the collision?
   A) 0.25 rad/s  B) 0.49 rad/s  C) 0.98 rad/s  D) 2.0 rad/s