Final –practice version
(It only gives some sample questions on the newest topic. For those topics we covered in previous test, please refer to your notes.)

_____ 1. _____ The second hand on a watch has a length of 4.50 mm and makes one revolution in 60.00 s. What is the speed of the end of the second hand as it moves in uniform circular motion?

(a) $9.42\times10^{-4}\,m/s$.
(b) $2.67\times10^{-3}\,m/s$.
(c) $5.34\times10^{-3}\,m/s$.
(d) $4.71\times10^{-4}\,m/s$.
(e) $2.36\times10^{-5}\,m/s$.

_____ 2. _____ What happens when a spinning ice skater draws in her outstretched arms?

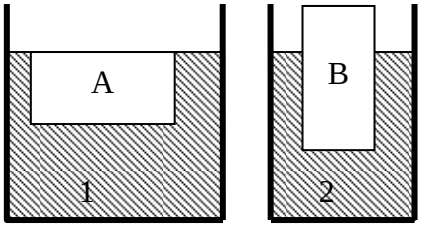
(a) Her angular momentum decreases.
(b) Her angular momentum increases.
(c) Her moment of inertia decreases causing her to speed up.
(d) Her moment of inertia decreases causing her to slow down.
(e) The torque that she exerts increases her moment of inertia.

_____ 3. _____ a circular hoop rolls without slipping on a flat horizontal surface. Which one of the following is necessarily true?

(a) All points on the rim of the hoop have the same speed.
(b) All points on the rim of the hoop have the same velocity.
(c) All points on the rim of the hoop have acceleration vectors that are tangent to the hoop.
(d) All points on the rim of the hoop have acceleration vectors that point toward the center of the hoop.
(e) All points on the rim of the hoop have the same rotational inertia in respect to the axis.

Comprehensive questions:

Two **identical** blocks labeled A and B are floating in two container. The first container is filled with water and the second container is filled with some unknown liquid. it was found that block A is just emerge into the water and exactly 1/3 of block B is still **out** of the liquid surface. The density of the water is $1.00\times10^{3}\,\mathrm{kg/m^3}$. What is the density of the second liquid?



Key:
D, C, E
1.5x10^3 kg/m^3