Lecture Comprehension, Introduction to Rigid-Body Motions (Chapter 3 through 3.1)

TOTAL POINTS 4

1. Which do we typically use to represent the C-space of a rigid body? **1 / 1 point**

- ○ Explicit parametrization (minimum number of coordinates).
- ◉ Implicit representation.

✓ **Correct**
We use rotation matrices and transformation matrices, which use more variables subject to constraints, to eliminate singularities in the representation of orientation and to allow linear algebraic operations for important calculations.

2. By the right-hand rule, which fingers of your right hand correspond to the x, y, and z axes of a coordinate frame, respectively? **1 / 1 point**

- ○ Thumb, index, middle
- ○ Middle, index, thumb
- ◉ Index, middle, thumb

✓ **Correct**

3. When your thumb points along an axis of rotation, positive rotation about the axis is defined by the direction your fingers curl if you use which thumb? **1 / 1 point**

- ◉ Right thumb
- ○ Left thumb

✓ **Correct**

4. When we refer to a frame attached to a moving body, we always consider a stationary frame {b}, because **1 / 1 point**

- ○ the motion of all other frames is expressed relative to {b}.
- ◉ {b} is the stationary frame that is coincident (at a particular instant) with the frame attached to the moving body.

✓ **Correct**
All frames are considered to be stationary, so the body frame {b} corresponds to the stationary frame that is instantaneously coincident with the frame moving with the body.