25.1 Rotate a space station about an axis. — The centrifugal force would feel like gravity. The surface of the water would not be quite flat. — It would lie on a circle.

25.2 \[ \overrightarrow{F_{\text{Effective}}} = \overrightarrow{F_{\text{Real}}} \] (Real force linear)
\[ \overrightarrow{F_{\text{Transverse}}} \] Transverse force
\[ 2m \ddot{\mathbf{r}} \] Coriolis force
\[ m \left( \frac{\dot{r}^2}{r^2} \right) \mathbf{\ddot{r}} \] Centrifugal force.

25.3 Force of resistance (stopping)
\[ \overrightarrow{F_{\text{Coriolis}}} \] Coriolis (if you lean forward)
25.4 You have to remember that the unit vectors on the left and right of \( \vec{v} - \vec{v}_0 - \vec{v}_0 \times \vec{x} \) are different, once you find \( \vec{v}_0 - \vec{v}_0 \times \vec{x} \), you have to apply a rotation to get back to the coordinates of the rotating frame.
26.1 No - it is thrown outward by the centrifugal force.

Yes. Although the plumb bob is thrown outward, the water is, too. — So it's 1 to the surface.

26.2 The important component of the earth's \( \vec{V} \) is upward in the northern hemisphere. \( \vec{V} \times \vec{w} \) is always to the right.

26.3 at the equator, \( \vec{w} \) is completely horizontal. \( \vec{v} \times \vec{w} \) can be up or down only.