1. Set up and solve the secular determinant for trimethylenemethane; it’s illustrated below. Use the atom numbering system indicated by the drawing.

2. For the allyl anion:
   - Set up and solve the secular determinant for the eigenvalues.
   - Set up the secular equations. Use the eigenvalues to determine the relationships between the AO-coefficients for each MO.
   - Normalize each MO eigenfunction. [Normalized functions satisfy the condition: $\langle \psi_i | \psi_i \rangle = 1$]