Answer all questions in a blue book, showing all your work. No credit will be given without appropriate derivation or explanation. This test is conducted under the UNC-CH Honor Code. You have 75 minutes.

Part I: Short answer questions (40 points)

1. In the two good case, are the following a set of admissible compensated demand functions? (8)
   \[ h_1 = \left\{ \frac{u_2}{p_1} \right\}^{1/2}, \quad h_2 = \left\{ \frac{u_1}{p_2} \right\}^{1/2} \]

2. A certain economics graduate student consumes only wine and cheese. For every glass of wine he always eats 3 oz. of cheese. Write down his (ordinary) demand functions for wine and cheese. (8)

3. If preferences over 3 goods are represented by \( U = \min\{X,Y,Z\} \) then no good is inferior. Do you agree? (6 points)

4. The Government of Mozambique has decided to remove price controls on cashews and allow farmers to freely export cashews at world prices. Cashews are a highly desirable luxury item. Use your knowledge of consumer theory to analyze the impact of this policy on the demand for cashews in the local market. (10 pts.)

Part II: Longer Problem (60 points)

1. For the preference ordering \( U = x^{1/2} + y \):
   a. Derive the ordinary demand functions and IUF.
   b. Verify any one property of the ordinary demand functions. Is \( x \) a normal good?
   c. Derive the compensated demand functions for \( x \) and \( y \).
   d. Explain the relationship between the ordinary and compensated demand functions for good \( x \). Verify the Slutsky equation for good \( x \).
   e. Consider the price-income scenarios shown below. Which scenario would the consumer prefer?
   f. Say the consumer was initially at 0 and was about to face the prices in scenario 2. What amount of income would make the consumer indifferent between the prices and income in 0 and the prices in 2?

<table>
<thead>
<tr>
<th>Scenario</th>
<th>( P_x )</th>
<th>( P_y )</th>
<th>( M )</th>
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<tbody>
<tr>
<td>0</td>
<td>2</td>
<td>4</td>
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