Here are the instructions from the exam:

**Part I**

Some of the statements below are always correct the others are sometimes incorrect. Indicate which are which by marking

- for statements that are **always true**
- for statements that may **false**

Here are some statements that could have been used:

- If \( f(x, y) \) is a continuous function on the region \( R \) of all \((x, y)\) with \( x^2 + y^2 < 1 \) then \( f(x, y) \) must have a maximum at some point in that region.

- If you use the method of Lagrange multipliers to solve the problem of maximizing \( K^{1/2}L^{1/3} - 2K - 3L \) with the constraint \( 2K + 6L = 3 \) then the value of \( \lambda \), the Lagrange multiplier, that you find is the partial elasticity of \( K \) with respect to \( L \).

- If the function \( f(x, y) \) does not have a maximum in the region \( R \) then the function \( g(x, y) = 6 - 3f(x, y) \) does not have a minimum in \( R \).

- The point in the plane \( 2x + 3y + 4z = 6 \) that is closest to the origin is also the point that minimizes the function \( f(x, y, z) = x^2 + y^2 + z^2 \) subject to the constraint \( 2x + 3y + 4z = 6 \).

- The Envelope Theorem gives a technique for testing if a critical point of a function is a local maximum.