

# Microeconomics I (ECO 202)

## Assignment

Total Marks : 30 Points

1. Explain why, in case of convex, monotone preferences, an indifference curve passing through the optimal bundle cannot cross the budget line in the interior. Also explain how crucial the role of convexity is in this regard. **5 points**
2. Let  $\succeq$  be a preference relation defined over a set of alternatives  $A$ . Assume that  $\succeq$  is complete, reflexive and transitive. Define another relation  $\succ$  over  $A$  based on  $\succeq$  as follows:  
  
For any two  $a, b \in A$ ,  $a \succ b$  if and only if  $a \succeq b$  and  $b \not\succeq a$   
  
Show that  $\succ$  is transitive. Is  $\succ$  complete and/or reflexive? **5 points**
3. For the utility function  $u(x_1, x_2) = \min\{ax_1 + bx_2, bx_1 + ax_2\}$ , where  $a > b > 0$ , calculate the uncompensated demand functions. **10 points**
4. Consider the utility function  $u(x_1, x_2) = \min\{x_1 + 1, 2(x_1 + x_2)\}$ . Calculate the uncompensated demand function of good 2. Starting from the situation where there is a unique internal optimal bundle, find out the income and substitution effect separately on the optimal quantity of good 2 for an decrease in price of good 2. **10 points**