ECO 201A
Problem Set 3

1. Consider the following observations from the utility function of a consumer:

   Amount: 1   2   3   4   5   6   7

   Utility (Utils):   5   11   16   20   23   24   20

   (a) Obtain the marginal utility schedule.
   (b) Suppose marginal utility of money is one util. How much will he consume if price of the product is Rs 5?
   (c) What will be his 'consumer surplus'?

2. "Higher the return from stock market investments, greater is the risk associated with them". Draw the indifference map.

3. Suppose government imposes a lump sum tax, an indirect tax on one of the goods, and a subsidy on the other good. Write the new budget equation.

4. Suppose the income of a consumer increases, and at the same time the price of a product increases. Will the consumer be necessarily better off?

5. Suppose the utility function of a consumer is $U = X^{0.5} + Y^{0.5}$.

   (a) Obtain the demand functions. Do they satisfy any homogeneity property?
   (b) Are the demand functions price elastic?
   (c) Are X and Y related to each other?
   (d) Obtain the income consumption curve?
   (e) Obtain the price consumption curve of good X.
   (f) Show that the second-order conditions are satisfied.

6. Suppose the utility function of the consumer is $U = X^{1/2}Y^{1/2}$.

   (a) Obtain the demand functions.
   (b) Obtain the indirect utility function. Does it satisfy any homogeneity property?
   (c) Use Roy's Identity to check whether you obtain the same demand functions.
   (d) Recover the direct utility function from the indirect utility function.

7. A consumer has a trade off between lassi and pepsi. What will be the effect of an *in kind* gift of a glass of lassi from a friend on his consumption of the two?

    How will this situation compare with the one where his father gifts him with the money to buy an extra glass of lassi.

8. Suppose the goods are perfect substitutes, say $U = X + Y$. Obtain one of the demand functions. Is there any substitution effect when price changes?

9. Suppose an individual consumes every glass of lassi with two spoonful of sugar. Comment on the properties of the utility function of this consumer. Obtain the demand function of lassi. Is there any substitution effect?

10. Which is better for a consumer: sales tax or income tax?