ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD
(Department of Economics)

Course: Mathematics for Economists (803)   **Semester: Autumn, 2012**
Level: M. Sc Economics   **Total Marks: 100**
Credit Hours: 03   **Pass Marks: 40**

ASSIGNMENT No. 1
(Units 1–4)

Q. 1 Differentiate among variables, constants and parameters also define endogenous as well as exogenous variables? **(20)**

Q. 2 Consider the market model **(20)**

$$Qd = 10 - 2P$$

$$Qs = 6P - 1$$

     a) Calculate the equilibrium price and quantity?
     b) Suppose Govt impose Rs 10 per unit tax on consumers. What will be the equilibrium price and quantity after tax?

Q. 3   a) Define matrix, vector and scalar? **(20)**
     b) Using Cramer's rule find the value of 'x', 'y' and 'z'

$$2x + 3y + z = 1$$

$$5x + y + 2z = 0$$

$$3x + 4y + 6z = 5$$

Q. 4 Write a detailed note on Jacobian determinants. Also give economic interpretation of total differentiation? **(20)**

Q. 5 Find the derivatives of the following: **(20)**
     a) $Y = (9x^2 + 1)(3x + 2)$
     b) $Y = (x^2 + 3)(x^{-1} - 1)$

ASSIGNMENT No. 2

Total Marks: 100   **(Units 5–9)**   **Pass Marks: 40**

Q. 1 Discuss in detail the rules of differentiation. Also discuss the importance of differentiation in economics? **(20)**

Q. 2 Explain with the help of examples the applications of exponential and logarithmic functions in economics? **(20)**

Q. 3 Explain with the help of example and diagram's the differences between concave function and strictly concave functions, convex functions and strictly convex functions? **(20)**

Q. 4 Describe the method of finding characteristics roots of the quadratic equation? **(20)**

Q. 5 Maximize the utility function: **(20)**

$U = X_1 + X_2$

Subject to $Y = P_1 X_1 + P_2 X_2$

Also find out demand functions.

========