ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD

(Department of Economics)

WARNING

1. **PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT(S) WILL DEBAR THE STUDENT FROM AWARD OF DEGREE/CERTIFICATE, IF FOUND AT ANY STAGE.**
2. **SUBMITTING ASSIGNMENTS BORROWED OR STOLEN FROM OTHER(S) AS ONE'S OWN WILL BE PENALIZED AS DEFINED IN "AIOU PLAGIARISM POLICY".**

Course: Mathematics for Economists (803) **Semester: Autumn, 2013**
Level: M. Sc Economics **Total Marks: 100**
Pass Marks: 40

ASSIGNMENT No. 1

(Units 1–4)

Q. 1 Define function? Also discuss in details various types of functions with the help of suitable examples. **(20)**

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

2P = 10-Q

6P = 1+Q

a) Calculate the equilibrium price and quantity.

b) Suppose Govt impose Rs 16 per unit tax on consumers. What will be the equilibrium price and quantity after tax?

Q. 3 a) Discuss in detail properties of a determinant. **(10)**

b) Using Cramer's rule find the value of 'x', 'y' and 'z' **(10)**

$$2x + 3y + z = 1$$
$$5x + y + 2z = 0$$
$$3x + 4y + 6z = 5$$

Q. 4 Discuss with the help of examples, the concept of continuity and differentiability of a function in detail. **(20)**

Q. 5 Explain with the help of algebraic examples, the application of derivatives of comparative static analysis in economic theory. **(20)**

ASSIGNMENT No. 2

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

Q. 1 What is implicit function? How can we find derivatives of implicit functions? **(20)**

Q. 2 Find the instantaneous rate of growth of the following: **(20)**

a) $y = 3t^2$

b) $y = ab^t$

c) $y = t/3^t$

d) $y = 2^t(t^2)$

Q. 3 Discuss the concept of extreme values in mathematics. Also explain the concept of first order and second order conditions for maxima and minima with the help of algebra and diagrams. **(20)**

Q. 4 What is meant by strictly concave and strictly convex functions? Explain in detail the procedure to check whether the function s strictly concave or strictly convex? **(20)**

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

$U = X_1X_2$

And budget constraint, $M = P_1X_1 + P_2X_2$

Find out the implied demand functions.

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