OLABISI ONABANJO UNIVERSITY, AGO-IWOYE
DEPARTMENT OF ECONOMICS
FACULTY OF MANAGEMENT SCIENCES
HARMMATTAN SEMESTER EXAMINATIONS, 2007/2008 SESSION

Course Code: ECO 205
Course Title: Mathematics for Economics I
Instructions: Answer All Questions
Time Allowed: 1 ½ Hrs

1.(a) Briefly explain the relevance of the study of mathematical economics to business.

(b) Demonstrate with relevant illustrations, the concepts of global maximum, minimum and inflexion in optimization problem.

2(a) With the use of concepts of limits and continuity only, differentiate the following functions: (i) $y = 2x^3$ (ii) $y = x^{1/3}$

(b) Given that $y = (2x^3 + xz^2)^3$; find $y_x, y_{xx}, y_z, y_{zz}, y_{xz}, y_{zz}$. Establish whether Young's theorem holds or not.

(3) Given that $Q = AK^{\alpha}L^{\beta}$, obtain:

(a) MPP_K (ii) MPP_L (iii) APP_K (iv) APP_L

(b) Are the results obtained in (a) above homogenous? If homogenous, determine the degree of homogeneity.

(4) Evaluate:

4a(i) $\int_2^3 (3x^2 + 4x - 6)dx$ (ii) $\int (2x+3)^{10} dx$

b. Given that DD= 274 - q^2 and SS= 4+3q; find

(i) the Consumers Surplus (ii) the Producers Surplus