



**NATIONAL OPEN UNIVERSITY OF NIGERIA
FACULTY OF SOCIAL SCIENCES
DEPARTMENT OF ECONOMICS
2017_2 Examination, January/February 2018**

**COURSE TITLE: MANAGERIAL ECONOMICS
COURSE CODE: ECO 824
UNITS: 3
TIME ALLOWED: 3 HOUR**

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER THREE QUESTIONS.

- 1a. Show mathematically the conditions required for Profit maximization in a firm. **6 Marks**
- 1b. Given that $P = 300 - 3Q$ and $TC = 80 + 2Q^2$
 - Determine the profit-maximizing level of output. **2 Marks**
 - Determine the maximum profit. **2 Marks**
 - Determine the unit price. **2 Marks**
- 1c. Show mathematically, the relationship between Price Elasticity, Marginal Revenue, and Total Revenue. **5.5 Marks**
2. Using the Lagrangian Multiplier method, optimize the profit function $z = 4X^2 - 2XY + 6Y^2$, subject to the constraint $X + Y = 72$. **17.5 Marks**
- 3a. What are the properties of the Cobb-Douglas Production function? **7.5 Marks**
- 3b. Given the Cobb Douglas Production Function $Q = AK^aL^b$, derive the following
 - Marginal Products of Labour (MP_L) **3 Marks**
 - Marginal Products of Capital (MP_K) **3 Marks**
 - Marginal Rate of Technical Substitution of Labour for Capital ($MRTS_{L,K}$) **4 Marks**
- 4a. As a marketing manager, in analysing and estimating the demand for your products, what factors are to be considered? **7.5 Marks**
- 4b. Based on Income-Demand Analysis, consumer's goods and services are grouped into different categories. Discuss. **10 Marks**
- 5a. Explain the concept, Demand Forecasting **5 Marks**
- 5b. Discuss the techniques employed in survey method of demand forecasting. **12.5 Marks**