NATIONAL OPEN UNIVERSITY OF NIGERIA
FACULTY OF AGRICULTURAL SCIENCES
SECOND SEMESTER EXAMINATION
JANUARY/FEBRUARY, 2018

Programme: Agricultural Extension and Management

Course Title: Agricultural Production Economics
Course Code: AEA 303
Credit Unit: 2
Total Score: 70 Marks
Time Allowed: 2 Hours

INSTRUCTION:
Answer Compulsory question 1 (25 marks) and any 3 questions (15 marks each).

1. (a) i. Give a concise definition of agricultural economics. **3 marks**
   ii. What is the role of economics in agricultural production? **3 marks**
   iii. Highlight on five (5) uses of economics in agriculture. **5 marks**
   (b) i. Define agricultural production economics. **3 marks**
   ii. Outline four (4) uses of production function. **4 marks**
   (c) i. Present the below hypothetical illustration of constant returns on graph.

Variable input (X)	Total output (Y)	Change in input (ΔX)	Change in output (ΔY)
1	10	-	-
2	15	1	5
3	20	1	5
4	25	1	5
5	30	1	5

5 marks

ii. Explain the relationship between Isoquant and MRTS. **2 marks**

2. (a) Itemize five (5) areas of specialization in agricultural economics. **5 marks**
   (b) List five (5) productive resources used by farmers. **5 marks**
   (c) Explain two (2) goals of agricultural production economics. **5 marks**

3. (a) Discuss the three (3) types of production. **6 marks**
   (b) Give the meaning of the following agricultural production economics concepts:
   - Variable
   - Coefficient
   - Efficiency
   - Resources

- Slope **5 marks**

(c) Explain with examples, the concept of short run and long run period of time in the production process. **4 marks**

4. (a) Find the marginal products and elasticities of this Cobb Douglas power function:
$Y = aX_1^{b1}X^{b2}_2$ **5 ½ marks**
(b) List and explain the three types of returns in production relationships. **4 ½ marks**
(c) Explain the meaning of the following concepts in production function:
- Average Physical Product (APP)
- Marginal Physical Product (MPP)
- Law of diminishing returns
- Rational Production Stage
- Irrational Production **5 marks**.

5. (a) Consider the production function of maize output as follows: $Y = 100 + 400X – 2X^2$
Where Y = maize output (kg) and X = fertilizer application (kg)
Calculate: (i) the level of input that will maximize maize output.
(ii) The optimum quantity of maize that could be produced. **7 marks**
(b) Explain the meaning of the following products relationships:
- Competitive Products
- Joint Products
- Complementary Products
- Supplementary Products **4 marks**
(c) Differentiate between variable, overhead, personal and capital costs. **4 marks**

6. (a) Discuss the classical measures of the following farm cost functions:
Total Cost, Fixed Cost, Variable Cost and Marginal Cost. **4 marks**
(b) Differentiate between Average Product (AP) and Average Cost (AC) **8 marks**
and also present them algebraically.
(c) What is Agricultural Cost and its implication to a farmer? **3 marks**