



**NATIONAL OPEN UNIVERSITY OF NIGERIA
14/16 AHMADU BELLO WAY, VICTORIA ISLAND, LAGOS
SCHOOL OF MANAGEMENT SCIENCES
SEPTEMBER/OCTOBER 2015 EXAMINATION**

COURSE CODE: BUS406 **CREDIT UNIT:** 3
COURSE TITLE: Analysis for Business Decisions
TIME ALLOWED: 2 ½ HOURS
INSTRUCTIONS:

1. Attempt question number one (1) and any other (3) questions.
2. Question number 1 carries 25 marks, while the other three (3) questions carry 15 marks each.
3. Present all your points in coherent and orderly manner

1a. Define Decision Analysis. **5marks**

b. A farmer is considering his activity in the next farming season. He has a choice of three crops to select from for the next planting season – Groundnuts, Maize, and Wheat. Whatever is his choice of crop; there are four weather conditions that could prevail: heaving rain, moderate rain, light rain, and no rain. In the event that the farmer plants Ground nuts and there is heavy rain, he expects to earn a proceed of ₦650,000 at the end of the farming season, if there is moderate rain ₦1,000,000, high rain – ₦450,000 and if there is no rain – (-₦1,000) If the farmer plants Maize, the following will be his proceeds after the harvest considering the weather condition: heavy rain – ₦1,200,000, moderate rain – ₦1,500,000, Light rain – ₦600,000 and no rain ₦2000. And if the farmer decides to plant wheat, he expects to make the following: heavy rain – ₦1,150,000, moderate rain – ₦1,300,000, Light rain- ₦800,000 and No rain – ₦200 -000. The farmer has contact you, an expert in OR to help him decide on what to do.

Required: Construct a payoff matrix for the above situation, analyse completely and advise the farmer on the course of action to adopt. Assume $\alpha = 0.6$. **20marks**

2a. Describe the phases in decision analysis **8marks**

b. What are the errors that can occur in making decisions? **7marks**

3a. Write short notes on the following:

i. Decision Node **2marks**

ii. Chance Even Node

3marks

b. Consider the contingency Matrix Below

Contingency Matrix

States of Nature	Alternatives		Probability
	Stock Rice (A ₁)	Stock Maize (A ₂)	
High demand (S ₁) (₦)	8,000	12,000	0.6
Low demand (S ₂) (₦)	4,000	-3,000	0.4

Represent the above payoff matrix on a decision tree and find the optimum contingency strategy.

10marks

4a. Give reasons why operations research is necessary in industries.

5marks

b. Give five (5) advantages of Simulation Technique.

10marks

5a. Using relevant diagram, define Systems Theory.

5marks

b. A stock keeper has to supply 12000 units of a product per year to his customer. The demand is fixed and known and the shortage cost is assumed to be infinite. The inventory holding cost is ₦ 0.20k per unit per month, and the ordering cost per order is N350. Determine

i. The optimum lot size q_0

3marks

ii. Optimum scheduling period t_0

3marks

iii. Minimum total variable yearly cost.

4marks

6. List and explain the classification of models by structure.

15marks