NATIONAL OPEN UNIVERSITY OF NIGERIA
14-16 AHMADU BELLO WAY, VICTORIA ISLAND LAGOS
SCHOOL OF MANAGEMENT SCIENCES
MARCH/APRIL 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 three (3).**

2. Question number 1 is compulsory and carries 25marks, while the other three questions carry 15marks each

3. Present all points in a coherent and orderly manner

QUESTION 1

A. Define Decision Analysis.

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 $\alpha = 0.6$.

QUESTION 2

A. Identify and explain the components of decision analysis.
B. Identify and briefly explain the four (4) decision making situations we have.

QUESTION 3

A. What is a decision tree
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.

QUESTION 4

A. What is a model?
B. List the six (6) schemes by which models can be classified.
C. Give five (5) advantages of simulation technique.

QUESTION 5

A. Using relevant diagram, define systems theory.
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
ii. Optimum scheduling period t_0
iii. Minimum total variable yearly cost.