



CRAWFORD UNIVERSITY

FAITH CITY, IGBESA

COLLEGE OF BUSINESS AND SOCIAL SCIENCES

DEPARTMENT OF ADMINISTRATION AND MANAGEMENT SCIENCES

HARMATTAN SEMESTER EXAMINATION, 2016/2017 SESSION

BUS 411: ANALYSIS FOR BUSINESS DECISIONS

Lecturer: Mr. Ogunlusi G.

INSTRUCTION: Answer any THREE questions

Time allowed: 2 hours.

1a. Identify and discuss four types of decisions situations. 8marks.

A company wishes to introduce a new product by replacing the old one and ensures a much higher price (S_1) or a moderate high price (S_2) or a small and negligible high price (S_3) is charged.

However, the following states of nature of the sales exist: increase in sales (N_1),

No change in sales (N_2) and, Decrease in sales (N_3). The following payoff table in terms of quarterly profits for the nature and strategies is given by the marketing department of the company as shown below:

Strategy	State of nature		
	N_1	N_2	N_3
S_1	4000	6000	3000
S_2	3500	4000	1500
S_3	5000	2000	4000

Required: Determine the strategy to be adopted for the above problem by using;

- i. Maximax criterion. 3marks.
- ii. Maximin criterion. 3marks.
- iii. Regret criterion. 3marks.
- iv. Laplace criterion 3marks.

2a. The computer set that are used in an organization have resistor with a life span of five months. The failure rates (in %) of these resistors are given below:

Months	1	2	3	4	5
% failure	10	30	35	20	5

Given that 989 resistors are fixed for used at a time, each resistor costs N28 if it is group replacement and N85 if replacement is done individually, calculate the cost of individual monthly replacement

12 marks.

2b). Briefly explain four basic replacement policies you are familiar with. 8marks.

3. Crawford ventures has plants or locations (A, B, C) where its goods can be produced with production capacity of 50, 60, 50 units per month respectively for a particular product. These units are to be distributed to 4 points (X, Y, W, Z) of consumption with the demand of 50, 70, 30, and per month. The following table gives the transportation cost (\$) from various points to the various plants consumption points

	DESTINATIONS			
	X	Y	W	Z
Source A	21	18	27	22
Source B	19	18	24	20
Source C	24	25	27	25

Obtain the initial basic feasible solution using;

i). North-west Corner rule.

10marks.

ii). Least cost method.

10marks.

4a. Explain four merits of simulation.

4marks.

b. Briefly discuss four customer's behavior in queue system.

4marks.

c). Crawford University cafeteria has a cashier at its counter. The service discipline of the cashier is FIFO. It is observed that the cafeteria has 18 arrivals on average of every 10 minutes while the cashier can serve 12 customers in 6 minutes. If the distribution of arrival and service rates are Poisson and exponential respectively, you are required to calculate:

a). the traffic intensity.

3marks

b). the average number of customers in the system.

3marks

c). the average queue length.

3marks

d). the average time a customer spend in the system

3marks

5a). Explain five relevance of Operations research

5marks.

b). ii. Briefly discuss the three elements of decision making.

6mks.

c). Graphically, describe the stages of operation research.

4marks.

d). Briefly discuss five types of inventory.

5marks