



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**Plot 91, Cadastral Zone, Nnamdi Azikiwe Express Way, Jabi-Abuja**  
**Faculty of Management Sciences**  
**October/November 2016 Examination**

**COURSE CODE: BUS 800**

**COURSE TITLE: Quantitative Analysis**

**CREDIT UNIT: 2**

**TIME ALLOWED: 2Hrs**

**INSTRUCTION:**

- 1. Attempt question number one (1) and any other (2) questions.**
- 2. Question number 1 carries 30 marks, while the other two (2) questions carry 20 marks each.**
- 3. Present all your points in coherent and orderly manner.**

**1a. Briefly trace the development of OR. 12marks**

**b. Let  $C = \{1,3,5\}$  is a subset of  $D = \{5,4,3,2,1\}$ . Find the Subset of C and D. 6marks**

**c. Find the following equality of sets; A & B; F & G**

**i. Let  $A = \{1, 2, 3, 4\}$  and  $B = \{3, 1, 4, 2\}$  6marks**

**ii. Let  $F = \{2,1\}$  and  $G = \{1,2,2,1\}$  6marks**

**2a. A businessman has constructed the payoff matrix below. Using the EMV criterion, analyse the situation and advise the businessman on the kind of property to invest on. 15marks**

Decision to invest	Good economic condition (#)	Poor economic condition (#)	Turbulent economic condition (#)
Apartment Building $d_1$	50,000	30,000	15,000
Office Building $d_2$	100,000	40,000	10,000
Warehouse $d_3$	30,000	10,000	-20,000
Probabilities	0.5	0.3	0.2

**2b.** Find the power of set of the following;

**i.** Let  $M = \{a,b\}$ , then  $2^M$  equal ..... **2marks**

**ii.** Let  $T = \{4,7,8\}$ , then  $2^T$  equal ..... **3marks**

**3.** The purchasing department of a big company has analysed the number of orders placed by each of the 5 departments in the company by type as follows:

	<b>Department</b>					
Types of Order	Sales	Purchasing	Production	Account	Maintenance	Total
Consumables	10	12	4	8	4	38
Equipment	1	3	9	1	1	15
Special	0	0	4	1	2	7
Total	11	15	17	10	7	60

An error has been found in one of these orders. What is the probability that the incorrect order:

a) came from maintenance? **5marks**

b) came from production? **5marks**

c) came from maintenance or production? **5marks**

d) came from neither maintenance nor production? **5marks**

**4a.** Discuss any five limitations for Linear Programming **10marks**

**b.** Assume there is a drug store with 10 antibiotic capsules of which 6 capsules are effective and 4 are defective. What is the probability of purchasing the effective capsules from the drug store?

**10marks**

**5a.** Discuss decisions that are made under conditions of certainty and Uncertainty. **10marks**

**b.** Outline five (5) advantages and application of simulation. **10marks**