



NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI, ABUJA
FACULTY OF MANAGEMENT SCIENCES
2025_1 EXAMINATION

COURSE CODE: ENT704 **CREDIT UNIT:** 2
COURSE TITLE: QUANTITATIVE METHODS
TIME ALLOWED: 2 Hours
INSTRUCTIONS:

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

1a. Solve the following assignment problem using minimization method. The matrix entries are processing time of each Job to each machine in hours. **15Marks**

	I	II	III	IV	V
1	9	22	58	11	19
2	43	78	72	50	63
3	41	28	91	37	45
4	74	42	27	49	39
5	36	11	57	22	25

b. Discuss the two phases involved in analyzing a decision tree. **2½Marks each = 5Marks**

c. Discuss four (4) scopes of OR in financial management. **2½Marks each = 10Marks**

2. Assuming six jobs are waiting to be processed. The processing time and due dates for the jobs are given below: Determine the sequence processing according to (a) FCFS (b) SPT and (c) EDD in the light of the following criteria: sequence, total flow time, average flow time, average job lateness and average number of jobs in the system. **15Marks**

Jobs	Processing Time (days)	Due date (days)
A	2	7
B	8	16

C	4	4
D	10	17
E	5	15
F	12	18

b. What do you understand by the term Simulation? **5Marks**

3. In the table below, items supplied from origins A, B, C and D and those demanded in locations 1, 2, 3 and 4 are shown. The figures in the boxes are the unit cost of moving an item from an origin to a destination, use the VAM method to allocate the material in order to minimize cost of transportation. **20Marks**

Origin	1	2	3	4	Supply
A	10	13	7	9	1000
B	6	11	15	18	2000
C	2	6	9	5	2500
D	11	15	10	1	3500
Demand	1500	2500	3000	2000	

4a. Describe five (5) limitations of simulation **2½Marks each = 10Marks**

b. Briefly discuss five (5) areas of Industrial Application of Linear Programming. **2Marks each for any five areas discuss = 10Marks**