



NATIONAL OPEN UNIVERSITY OF NIGERIA
Plot 91, Cadastral Zone, Nnamdi Azikiwe Express Way, Jabi - Abuja
DEPARTMENT OF BUSINESS ADMINISTRATION
FACULTY OF MANAGEMENT SCIENCES
2024_2 EXAMINATION

COURSE CODE: BUS406

COURSE TITLE: ANALYSIS FOR BUSINESS DECISION

INSTRUCTIONS: 1. Indicate your Matriculation Number clearly

2. Answer questions one (1) 25marks and any other three (3) questions 15marks each

TIME: 2hrs 30mins

1a. Critique the relationship between critical path method (CPM) and project evaluation and review technique (PERT).

1b. Consider the following setup for a portable drinking water company.

Activity	Optimistic Time	Most Likely Time	Pessimistic Time
1-2	4	8	9
1-6	2	5	9
2-3	6	12	18
2-4	4	5	6
3-5	8	11	14
4-5	3	7	12
6-7	3	9	15
5-8	2	4	6
7-8	8	16	18

i. Determine the estimated time for each activity.

ii. Identify the critical path for this project.

iii. Find the probability that the project will be completed within 36weeks?

Note:

STANDARD NORMAL DISTRIBUTION: Table Values Represent AREA to the LEFT of the Z score

Z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.2	.57926	.58317	.58706	.59095	.59483	.59871	.60257	.60642	.61026	.61409
0.3	.61791	.62172	.62552	.62930	.63307	.63683	.64058	.64431	.64803	.65173
0.4	.65542	.65910	.66276	.66640	.67003	.67364	.67724	.68082	.68439	.68793
0.5	.69146	.69497	.69847	.70194	.70540	.70884	.71226	.71566	.71904	.72240
0.6	.72575	.72907	.73237	.73565	.73891	.74215	.74537	.74857	.75175	.75490
0.7	.75804	.76115	.76424	.76730	.77035	.77337	.77637	.77935	.78230	.78524
0.8	.78814	.79103	.79389	.79673	.79955	.80234	.80511	.80785	.81057	.81327

2. The following data is provided in respect of Portal Air Communication neighbourhood centre. The centre schedule customers for 25 minutes though some customers' cases may take upto 45 minutes to be resolved by technical staff. The following data relates to the various services often requested by customers.

Simulate the neighbourhood centre's operation for the next 5hours if the centre opens for business by 8:00am daily.

Service Category	Time Required	No. of Customers	Probabilities
Sim replacement	20 minutes	42	0.25
Sim registration	42 minutes	45	0.30
Purchase of router	15 minutes	15	0.10
Purchase of phone	10 minutes	25	0.15
Service assurance	15 minutes	20	0.20

i. Determine the average waiting time per customer if customers arrive at exactly their scheduled time.

ii. What is the average idle time of staff?

Note: use the following random numbers in attending to customers. 40, 82, 11, 34, 25, 60, 17, 85, 22, 11, 71, 66, 42, 35, 17.

3a. Explain the concept of job sequencing drawing the underlying assumption.

3b. The Production manager of Blackwax Nigeria ltd Company has the following job and operators placement challenge which is presented in the form of a contingency table below. Advice the company in your capacity as a management consultant on how best to assign operators to jobs.

OPERATORS						
JOBS		1	2	3	4	5
	1	9	11	14	11	7
	2	6	15	13	13	10
	3	12	13	6	8	8
	4	11	9	10	12	9
	5	7	12	14	10	14

4a. Decision making has many phases. Identify and discuss these phases.

4b. Udogwu Nig. Ltd. has a new product with the following operational data. The company is planning to either test market it or abandon it. If they test it it will cost N6,000,000 and the response could be positive or negative with the probabilities of 0.75 and 0.25 respectively. If it is positive, they could either market or abandon it. Should the product be marketed, the result might be low, medium or high demand with the respective net pay off being N1,000,000, N9,000,000 or N14,000,000 with a probability of 0.20, 0.50, 0.30 respectively. If the result of the marketing is negative the company would have no choice but to abandon the product. Should the product be abandoned at any stage by the company there is a possibility that a scrap value of N4,500,000 can be generated as net inflow.

i. Prepare the decision tree for the above problem.

ii. What is the net payoff of the product is marketed?

iii. What is the net payoff if the test marketing result is positive but ultimately abandoned?

5a. With the aid of a diagram, explain the interconnected relationship between the elements of a system.

5b. The following is relation to a carton production company. Annual production of cartons is 2,460,000, internal ordering cost is N6,000 per order while carrying cost is N75 per carton per annum. It takes only three days to receive order when placed.

i. What is the economic order quantity?

ii. What is the optimum number of order in the year?

iii. What is the Minimum inventory cost?