



"Investing in Africa's Future"

COLLEGE OF BUSINESS, PEACE, LEADERSHIP AND GOVERNANCE

NMBA503: QUANTITATIVE METHODS FOR MANAGERS

END OF SEMESTER EXAMINATION

NOVEMBER 2021

PROF S. MURAIRWA

TIME: 5 HOURS

INSTRUCTIONS

Answer One question.

Start each question on a new page.

The marks allocated to each question are shown at the end of the question.

Credit will be given for logical, systematic and neat presentations.

1. A production company wants to investigate the performance of each of its four production lines. The company sampled 100 items from each of the production lines per day for the three months. The average percentages of the quality of products from each production line are presented in the following table:

Production Line	August 2021	September 2021	October 2021
I	21	34	36
II	10	12	21
III	75	85	100
IV	36	36	40

- a) Discuss the different types of interviews that could have been implemented in the data collection. Which interview type is appropriate to collect data for this problem?
[25 marks]
 - b) Explain the steps that should be implemented in order to address the problem.
[25 marks]
 - c) Analyse the data using appropriate quantitative data analysis tools and procedures and compile a report for the management.
[50 marks]
2. The management wants to understand the performance of the company's production line over a period of four years. The company assigned the Operations Manager to analyse the following data:

	Quarter			
Year	I	II	III	IV
2018	20	10	4	11
2019	33	17	9	18
2020	45	23	11	25
2021	60	30	13	29

- a) Analyse the data using the appropriate quantitative data analysis tools and procedures and compile a report for the management.
[25 marks]
- b) With an example, discuss decision analysis.
[25 marks]
- c) Discuss the sampling designs. Which sampling design was used to collect the data?
[50 marks]

3. The bureau of Labour Statistics has sampled 30 communities in Zimbabwe and explained prices in each community at the beginning and end of September 2021 in order to find out approximately how the Consumer Price Index has change during the month. The percentage change in prices for the communities at the beginning of the month are given below:

0.8	0.2	-0.1	0.1	-0.2
0	0.6	0.3	0.2	1.0
-0.5	-0.2	0	0.4	0.6
0.2	0.3	0.5	-0.1	-0.2
-0.4	0	0.1	0.3	0.1
0	0.1	0.2	0.1	0.3

- a) Discuss the variable of interest. Explain how you would determine the distribution of the data? **[20 marks]**
- b) Analyse the data using appropriate quantitative data analysis tools and procedures and compile a report for the management. **[30 marks]**
- c) Discuss the sampling design(s). Which sampling design was used to collect the data? **[50 Marks]**

End of paper
