FACULTY OF BUSINESS MANAGEMENT

END OF SEMESTER EXAMINATIONS - APRIL 2025

PROGRAMME: MBA

YEAR/SEM: YEAR 2/SEMESTER 1

COURSE CODE: MBA 842

NAME: QUANTITATIVE ANALYSIS AND TECHNIQUES

DATE: 2025-04-16

TIME: 2:00-5:00PM

INSTRUCTIONS TO CANDIDATES:

1. Read the instructions very carefully

2. The time allowed for this examination is STRICTLY three hours

3. Read each question carefully before you attempt and allocate your time equally between all the Sections

4. Write clearly and legibly. Illegible handwriting cannot be marked

5. Number the questions you have attempted

6. Use of appropriate workplace examples to illustrate your answers will earn you bonus marks

7. Any examination malpractice detected will lead to automatic disqualification.

DO NOT WRITE ANYTHING ON THE QUESTION PAPER

Section A Section A. (40 marks)

Question 1:

Question 2 (40 marks):

A)To enhance future planning, an IUEA project manager want to examine the performance of previous projects. She gathers information on resource usage, project expenses, and completion dates. The business wishes to use quantitative analysis to identify important patterns.

Required:(20 marks)

> a) Why does project planning require quantitative analysis, and what does it entail? (5marks)
>
> b) What role do central tendency measures play in project analysis? (5marks)
>
> c) Why does evaluating project completion timelines include consideration of the standard deviation? (5marks)
>
> d) How can project management resource allocation be enhanced by quantitative analysis? (5marks)

B) In order to better precisely forecast project duration, the manager mentioned in question 1 (A) above is examining completion times for various construction projects.

Required (20 marks):

a) a) How significant are measurements of central tendency in the analysis of project timelines? (3marks)

b) b) Project timeframes have a standard deviation of three months. In what ways does this knowledge aid in scheduling? (4marks)

c) c) How do metrics of centrality function in project analysis? (3 marks?)

d)d) In project management, how can quantitative analysis enhance resource allocation, and what part does variance play in project cost management? (10 marks)

Section B Section B (60 marks) : Attempt any three questions

Question 1:

Question two :(20 marks)

A project manager analyzed a product's monthly sales data (in dollars) during the previous year. The following sales information is given:

Month	Sales (Dollars)
January	150
February	200

March	180
April	170
May	160
June	210
July	190
August	220
September	230
October	240
November	250
December	260

Required:

    a) Calculate the mean, median, and mode for the monthly sales data and Interpret the results obtained from the measures of central tendency (10 marks).

    b) What effects might extreme values (outliers) have on the forecasting process and the metrics of central tendency in the sales data? (10 points)

Question 2:

Question one:(20 marks)

In order to predict demand for the next few months, an MBA student at IUEA specializing in P analyzed a product's monthly sales data (in dollars) during the previous year. The following sales information is given:

Month	Sales (Dollars)
January	150
February	200
March	180
April	170
May	160
June	210

Required:

    a) Discuss the implications of the central tendency measures for forecasting demand (8 mark)

    b) How would extreme values (outliers) in the sales data impact the measures of central tendency and the forecasting process? (8marks)

    c) Suggest alternative measures or techniques that can complement the analysis of central tendency in forecasting demand for the product (4 marks)

Question 3:

Question four :(20 marks)

To get consumer input on the launch of a new product, a project planner is setting up a survey. From a large database, the manager must select a sample of clients to administer the survey. This database contains information about the geographic areas, purchasing histories, and demographics of the customers.

Required:

a) Detail the steps the project manager should take to implement the chosen sampling method? (6 marks)

b) Discuss potential challenges or limitations associated with the chosen sampling method and how they can be addressed? (8 marks)

c) Suggest strategies for maximizing the representativeness and reliability of the survey results obtained from the selected sample? (6 marks)

Question 4:

Question three :(20 marks)

A survey is being organized by a project planner to get consumer opinions regarding the launch of a new product. The manager must select a sample of clients from a large database in order to administer the survey. Customers' demographics, past purchases, and geographic areas are all included in this database.

Required:

a) Explain the significance of sampling in the context of the project manager's customer survey? (10 marks)

b) Determine and describe which sampling method would be most suitable for choosing customers for the survey with relevant example? (10 marks)

Question 5:

ï»¿**Question eleven:** (20 marks)

a)Â Â a)Â Â A company wants to analyze the effectiveness of its new sales strategy in increasing revenue. Describe the steps you would take to conduct inferential statistics on this data. (12

marks)

b)Â Â b)Â What are the assumptions underlying the paired t-test, and how would you verify these assumptions in our case study? (8 marks)

Question 6:

Question twelve: (20 marks)

a) Describe the Quantitative Analysis Process as a Project manager with relevant examples? (10 marks)

b) The following table gives the cost income of 10 staff in an office. Income (in Rs): 1780, 1760, 1690, 1750, 1840, 1920, 1100, 1810, 1050, 1950. Calculate the Mean deviation, range an median (10 marks)