



MURANG'A UNIVERSITY OF TECHNOLOGY
SCHOOL OF COMPUTING AND INFORMATION
TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY POSTGRADUATE EXAMINATION

2024/2025 ACADEMIC YEAR

FIRST YEAR FIRST SEMESTER EXAMINATION FOR

SIT 801 – ANALYTICS AND BUSINESS INTELLIGENCE

DURATION: 3 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Answer any FOUR questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

QUESTION ONE (25 MARKS)

- a) Evaluate any 5 types of business Intelligence and for each type demonstrate how they support decision. making. (10 marks)
- b) Critique any 5 data analytic tools and techniques as used by data Scientists. (10 marks)
- c) Examine any 5 roles of databases in Business Intelligence and explain how they differ from data warehouses. (5 marks)

QUESTION TWO (25 MARKS)

- a) Evaluate any 5 roles of text and web analytics in modern business intelligence. (5 marks)
- b) Analyse giving appropriate examples of any 3 ways web analytics fit into a boarder context of data analytics explaining its unique contributions and value. (12 marks)
- c) Discuss any 4 common challenges and 4 limitations faced in text and web analytics. (8 marks)

QUESTION THREE (25 MARKS)

- a) Identify and discuss 5 major ethical concerns and potential biases associated with text and web mining particularly when dealing with user-generated content or sensitive information. (6 marks)
- b) Analyse 5 scalability challenges that text mining encounter when dealing with vast amount of data. (5 marks)
 - i. Provide examples of how these challenges may impact the efficiency and effectiveness of mining algorithms. (5 marks)
- c) Explain 3 challenges related to the dynamic nature of web data. (6 marks)
 - i. Discuss how these challenges can affect the accuracy of text mining results. (3 marks)

QUESTION FOUR (25 MARKS)

- a) Critically evaluate any effectiveness of data visualization techniques in business reporting and Analytics. (10 marks)
- b) Examine how any five data visualization techniques can enhance business intelligence, demonstrating with examples successful applications. (5 marks)

- c) Describe a real-world scenario where graph database should be more suitable choice than a relational database for a business intelligence purpose. (5 marks)
- i. Justify your choice by explaining the specific characteristics of the data and the analytical requirements that would benefit from a graph database. (5 marks)

QUESTION FIVE (25 MARKS)

- a) Explain how data from various databases is integrated into data warehouse for business Intelligence and why this integration is important. (5 marks)
- b) Imagine you have been given a dataset of retail transactions and you are asked to apply association mining techniques to discover frequent item-sets and association rules.
- i. Explain how this analysis can be beneficial for retail business in terms of optimizing product placement and promotions. (4 marks)
- ii. Discuss a scenario where time series analysis would be more appropriate than association mining for predictions decision making. (6 marks)
- c) Evaluate any 5 roles of big data analytics in addressing complex business intelligence. (10 marks)