



Strathmore
UNIVERSITY

STRATHMORE BUSINESS SCHOOL
FINANCE & ACCOUNTING DEPARTMENT
BACHELOR OF FINANCIAL SERVICES
END OF SEMESTER EXAMINATION
BFS3102: ESSENTIALS OF BUSINESS DATA ANALYTICS

DATE: 31st July 2023

Time: 2 Hours

Instructions

- 1) This examination consists of **FIVE** questions.
- 2) Answer **Question ONE (COMPULSORY)** and any other **TWO** questions.
- 3) Mobile phones and any written material are prohibited in the examination room.
- 4) No writing should be done on this question paper. Any rough work should be done at the back of the answer booklet and canceled.
- 5) Programmable calculators are prohibited.

Question One

(30 marks)

- a) Business analytics comprises four concepts. Identify and describe each **(4mks)**
- b) Explain the **meaning** of and the **need** for each of the following business analytics methods:
 - i) Prescriptive analytics **(2mks)**
 - ii) Diagnostic analytics **(2mks)**
 - iii) Descriptive analytics **(2mks)**
- c) Volume, variety, veracity and velocity are some of the key characteristics of big data. Using relevant examples, explain each of them. **(8mks)**
- d) Regression analysis is used for predicting continuous variables in data analytics. From the following data, derive a relevant regression equation of income on the age a worker left education. (use the equations below) **(8mks)**

Income (Y)	Age left educ (X)
9	35
6	54
8	35
3	43

5	35
8	33

- e) The first four phases of data mining are business understanding, data understanding, data presentation and modelling. Identify and describe a task under each phase. **(4mks)**

Question Two

(20 marks)

- a) From the following data, derive the seasonal component that has already absorbed irregular variations, using the itemised steps.

<u>Year</u>	<u>Quarters</u>	<u>Sales(100s)</u>
Year 1	1	5
	2	4.3
	3	6.2
	4	6.7
Year 2	1	6
	2	5.4
	3	7
	4	7.6
Year 3	1	6.2
	2	5.8
	3	7.7
	4	8

- i) Compute a moving average of order four MA(4) **(4mks)**
 ii) Compute the centred moving average CMA(4) **(4mks)**
 iii) Evaluate Y-CMA(4) **(4mks)**
 iv) Compute the seasonal component **(4mks)**
- b) Differentiate between the multiplicative and the additive time series models relating each to situations they are relevantly applied. **(4mks)**

Question Three

(20 marks)

A data analysis report is the basis of prescriptive analytics for stakeholders and hence business strategy. Write short notes on the four parts of the report, structured as follows.

- a) Introduction **(3mks)**
 b) Body **(6mks)**
 c) Conclusion and discussion **(5mks)**
 d) Appendices **(6mks)**

Question Four

Happy Belt manufacturers manager has a choice between

- i. A risky contract costs 13 million. It promises KES 5 million with probability 0.6 and KES 4 million with probability 0.4 at the end of each of 4 years and
- ii. A diversified portfolio costing 8 million, consisting of two contracts with independent outcomes one promising KES 3.5 million with probability 0.6 and the other promising KES 5.2 million with probability 0.4 at the end of each of 3 years. The applicable discount rate is 7%p.a.

Required:

- a) Draw a decision tree diagram and label the decision node(s) as well as probability node(s) including the probabilities. **(7mks)**
- b) Using expected monetary value method, evaluate the two choices and advise the manager **(13mks)**

Question Five

(20 marks)

- a) Define big data and explain three types of big data in the context of business competition **(7mks)**
- b) Write short notes on the following data mining techniques:
 - i) Clustering **(3mks)**
 - ii) Classification **(3mks)**
 - iii) Prediction **(3mks)**
 - iv) Association **(3mks)**
- c) Explain one benefits of prescriptive analytics **(1mks)**

END