



MEDICAPS
UNIVERSITY

Faculty of Management Studies

End Semester Examination May 2025

MS5CO29 Introduction to Business Analytics & Data Science

Programme	: MBA	Branch/Specialisation	: -
Duration	: 3 hours	Maximum Marks	: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Section 1 (Answer all question(s))		Marks	CO	BL
Q1.	What does the S.M.A.R.T framework stand for in problem framing?	1	1	1
	<input checked="" type="radio"/> Specific, Measurable, Achievable, Realistic, Time-bound <input type="radio"/> Simple, Measurable, Accessible, Reliable, Transparent <input type="radio"/> Structured, Manageable, Accurate, Rational, Testable <input type="radio"/> Strategic, Meaningful, Adaptable, Resourceful, Tactical			
Q2.	According to Split-Brain theory, right-brained individuals are more likely to be-	1	1	2
	<input type="radio"/> Analytical and logical <input checked="" type="radio"/> Creative and intuitive <input type="radio"/> Technical and systematic <input type="radio"/> Rule-based and organized			
Q3.	What is the main purpose of using the five Whys technique?	1	2	2
	<input type="radio"/> Collecting data <input type="radio"/> Designing reports <input checked="" type="radio"/> To find the root cause of a problem <input type="radio"/> Documenting assumptions			
Q4.	The SPIN framework stands for-	1	2	1
	<input checked="" type="radio"/> Situation, Problem, Implication, Need-payoff <input type="radio"/> Strategy, Planning, Investigation, Navigation <input type="radio"/> Scenario, Perception, Innovation, Negotiation <input type="radio"/> Solution, Process, Insight, Note			
Q5.	Which of the following is a pattern of insight?	1	3	1
	<input type="radio"/> Emotion <input checked="" type="radio"/> Comparison <input type="radio"/> Guesswork <input type="radio"/> Imagination			
Q6.	What is the key principle behind the pyramid principle?	1	3	2
	<input type="radio"/> Bottom-up data sorting <input type="radio"/> Emotional storytelling <input checked="" type="radio"/> Top-down communication of key messages <input type="radio"/> Formatting visual reports			
Q7.	Which of the following is a numerical data type?	1	4	1
	<input type="radio"/> Gender <input type="radio"/> Category <input checked="" type="radio"/> Age <input type="radio"/> Color			
Q8.	What is the purpose of data cleaning?	1	4	2
	<input type="radio"/> Encrypting data <input type="radio"/> Expanding data <input checked="" type="radio"/> Correcting errors and inconsistencies <input type="radio"/> Aggregating columns			
Q9.	In supervised learning, models are trained using-	1	5	1
	<input type="radio"/> No data <input type="radio"/> Input variables <input checked="" type="radio"/> Both input and known output variables <input type="radio"/> Historical patterns			

Q10. Which machine learning technique is used for grouping similar data points?

1 5 1

- ☐ Classification
 ☐ Regression
☒ Clustering
 ☐ Forecasting

Section 2 (Answer all question(s))

Marks CO BL

Q11. Explain how the S.M.A.R.T framework helps in framing business problems.

4 1 2

Rubric	Marks
Two marks for SMART full form and Two marks for framing business problem	4

Q12. (a) Describe the challenges faced in analyzing the hospital discharge process and suggest possible improvements.

6 1 1

Rubric	Marks
Three marks for defining HDP and three marks for suggestion possible improvements	6

(OR)

(b) Differentiate between facts and opinions when prioritizing key issues in problem-solving.

Rubric	Marks
Two marks for each difference with prioritizing. Minimum Three point must explain.	6

Section 3 (Answer all question(s))

Marks CO BL

Q13. How do frameworks like five WHYs and SPIN help in identifying business problems?

4 2 2

Rubric	Marks
Two marks for each problem.	4

Q14. (a) Explain the components of the business model canvas with a relevant example.

6 2 1

Rubric	Marks
Three marks for components and three marks for business model canvas example.	6

(OR)

(b) Discuss the PESTEL framework. How it can be applied in analyzing external business environments?

Rubric	Marks
Three marks for PESTEL framework and three marks for analyzing external business environment	6

Section 4 (Answer all question(s))

Marks CO BL

Q15. Explain the role of visualization in communicating insights using qualitative data.

4 3 1

Rubric	Marks
Two marks for qualitative data and two marks for role of visualization	4

Q16. (a) Describe how new columns and row summaries can help in data analysis.

6 3 1

Rubric	Marks
three marks for row and column summaries help in data analysis.	6

(OR)

(b) Explain how the pyramid principle can structure your insights effectively.

Rubric	Marks
Two marks for pyramid principle and four marks for insights	6

Section 5 (Answer all question(s))

Marks CO BL

Q17. Describe the different data types used in business analytics.

4 4 1

Rubric	Marks
One marks for each data types	4

Q18. (a) What is Exploratory Data Analysis (EDA)? Describe any two techniques with examples.

6 4 1

Rubric	Marks
Two marks for EDA and Four marks for two techniques.	6

(OR)

(b) Why is data preprocessing important before analysis? Explain briefly.

Rubric	Marks
Three marks for data processing and Three marks for explanation.	6

Section 6 (Answer all question(s))

Marks CO BL

Q19. Differentiate between supervised and unsupervised learning with examples.

4 5 1

Rubric	Marks
Two marks for supervised and two marks for unsupervised leaning with example	4

Q20. (a) Explain any two business applications of machine learning.

6 5 2

Rubric	Marks
Three marks for each machine learning application.	6

(OR)

(b) What is feature engineering? Why is it important in ML modeling?

Rubric	Marks
Three marks for feature engineering and three marks for ML modeling.	6
