OR	iii.	Explain the 5W and 5WHYs framework in problem-solving and business analysis in detail.	**7**	2	9	2
Q.4	i.	What are various visual design principles?	**3**	2	10	3
	ii.	Explain the importance of using patterns of insights in data analysis. How they contribute to effective storytelling?	**7**	3	10	3
OR	iii.	Discuss the approach of visualizing qualitative variables. How it differs from visualizing quantitative data?	**7**	2	9	3
Q.5	i.	What are various data visualization techniques?	**3**	2	10	4
	ii.	What is Exploratory Data Analysis (EDA)? Explain in detail. How is it used in business analytics.	**7**	3	10	4
OR	iii.	Describe the different types of data used in business analytics and provide examples for each. Also write about sources and formats of data.	**7**	3	9	4
Q.6	i.	Mention six business problems where machine learning can be applied.	**3**	2	10	5
	ii.	Explain the differences between supervised and unsupervised learning with examples.	**7**	3	10	5
OR	iii.	What is feature engineering? Why is it important for the success of machine learning models?	**7**	3	10	5

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Total No. of Questions: 6 *Total No. of Printed Pages:4*

Enrollment No.....

Faculty of Management Studies
End Sem Examination Dec 2024
MS5CO41
Fundamentals to Business Analytics & Data Science

Programme: MBA Branch/Specialisation: Business Analytics

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	**BL**	**PO**	**CO**	**PSO**
Q.1	i.	What is the primary benefit of the MECE approach in problem-solving? (a) It encourages creativity and unconventional solutions. (b) It ensures that all aspects of a problem are considered without overlap. (c) It focuses solely on the most critical issues, ignoring minor factors. (d) It speeds up the decision-making process by limiting the number of alternatives.	**1**	2	9	1	
	ii.	According to the Split-Brain Theory, which hemisphere of the brain is associated with creative and intuitive thinking? (a) Left hemisphere (b) Right hemisphere (c) Both hemispheres equally (d) Neither hemisphere	**1**	2	9	1	
	iii.	What is the primary purpose of formulating a hypothesis in problem-solving? (a) To make assumptions without evidence (b) To test a possible solution through observation and analysis (c) To avoid gathering data (d) To rely on intuition rather than evidence	**1**	2	9	2	

iv.	What is the first step in preparing for an interview? (a) Conducting the interview without preparation (b) Asking questions that are easy to answer (c) Understanding the purpose of the interview and preparing relevant questions (d) Starting with closed-ended questions	**1**	2	9	2
v.	Which of the following is a key characteristic of the pyramid principle in structuring a story or argument? (a) Presenting the conclusion first and supporting it with details. (b) Following a chronological order of events. (c) Discussing the details first and concluding at the end. (d) Focusing solely on the visual design elements.	**1**	2	9	3
vi.	In the context of data visualization, why is visualizing quantitative data important? (a) It helps to communicate abstract ideas with the audience. (b) It ensures that qualitative data is more comprehensible. (c) It simplifies complex numerical information and makes it easier to interpret. (d) It makes the data more complicated and harder to understand.	**1**	2	9	3
vii.	Which of the following is an example of categorical data? (a) Age (b) Income (c) Education level (d) Temperature	**1**	3	9	4
viii.	Which of the following is NOT a statistical measure used in basic data analysis? (a) Mean (b) Mode (c) Median (d) Random sampling	**1**	2	9	4

ix.	Which of the following best defines supervised learning in machine learning? (a) The algorithm learns from unlabeled data to find hidden patterns. (b) The algorithm learns from labeled data to predict outcomes. (c) The algorithm generates random patterns to identify trends. (d) The algorithm does not require data to make predictions.	**1**	2	9	5	
x.	Which of the following is a key difference between classification and clustering techniques? (a) Classification predicts a continuous value, while clustering predicts discrete categories. (b) Classification uses labeled data, while clustering works with unlabeled data. (c) Classification groups similar data points together, while clustering separates them. (d) Classification requires a neural network, while clustering uses decision trees.	**1**	2	9	5	
Q.2	i.	What is the Split-Brain Theory? How does it apply to problem-solving?	**3**	2	9	1
	ii.	Consider a situation where you need to implement a solution to the hospital discharge process. Discuss the steps involved in analyzing possible solutions, prioritizing options, and considering their implications.	**7**	3	5, 9	1
OR	iii.	Describe the S.M.A.R.T framework and how it can be used to frame a business problem. Also write the advantages of using the MECE (Mutually Exclusive, Collectively Exhaustive) approach in problem-solving.	**7**	3	9	1
Q.3	i.	What are the key steps to follow when conducting an interview, according to the "Do's and Don'ts" of interviewing?	**3**	2	9	2
	ii.	Explain how the 4Ps and 5C frameworks can be used to analyze and solve business problems.	**7**	2	9	2

Marking Scheme

MS5CO41(T) Fundamentals to Business Analytics And Data Science-(T)

Q.1	i)	**B)** It ensures that all aspects of a problem are considered without overlap.	**1**
	ii)	**B)** Right hemisphere	**1**
	iii)	**B)** To test a possible solution through observation and analysis	**1**
	iv)	**C)** Understanding the purpose of the interview and preparing relevant questions	**1**
	v)	**A)** Presenting the conclusion first and supporting it with details.	**1**
	vi)	**C)** It simplifies complex numerical information and makes it easier to interpret.	**1**
	vii)	**C)** Education level	**1**
	viii)	**D)** Random sampling	**1**
	ix)	**B)** The algorithm learns from labeled data to predict outcomes.	**1**
	x)	**B)** Classification uses labeled data, while clustering works with unlabeled data	**1**
Q.2	i.	What is the Split-Brain Theory, and how does it apply to problem-solving? 2 marks 1 mark	**3**
	ii.	Consider a situation where you need to implement a solution to the hospital discharge process. Discuss the steps involved in analyzing possible solutions, 3 marks prioritizing options, and 2 marks considering their implications. 2 marks	**7**
OR	iii	Describe the S.M.A.R.T framework and how it can be used to frame a business problem. 4 marks Also write the advantages of using the MECE (Mutually Exclusive, Collectively Exhaustive) approach in problem-solving 3 marks	**7**
Q.3	i.	What are the key steps to follow when conducting an interview, according to the "Do's and Don'ts" of interviewing? Do's 1.5 marks Don'ts 1.5 marks	**3**
	ii.	Explain how the 4Ps and 5C frameworks can be used to analyze and solve business problems. 4P 3 Marks 5P 4 Marks	**7**
OR	iii.	Explain the 5W and 5WHYs framework in problem-solving and business analysis in detail. 4 Marks business analysis 3 Marks	**7**
Q.4	i.	What are various Visual Design Principles? Explanation -3 Marks	**3**
	ii.	Explain the importance of using patterns of insights in data analysis and how they contribute to effective storytelling.	**7**
OR	iii.	Discuss the approach of visualizing qualitative variables and how it differs from visualizing quantitative data. approach of visualizing 4 Marks quantitative data 3 Marks	**7**
Q.5	i.	What are various data visulaization techniques? Example 2 Marks 1 Mark	**3**
	ii.	What is Exploratory Data Analysis (EDA), Explain in detail and how is it used in business analytics? EDA 4 Marks Explain 3 Marks	**7**
OR	iii.	Describe the different types of data used in business analytics and provide examples for each. Also write about sources and formats of data. Describe 4 Marks Source & formats 3 Marks	**7**
Q.6	i.	Mention 6 business problems where machine learning can be applied. Problem 2 Marks each	**3**
	ii.	Explain the differences between supervised and unsupervised learning with examples. Differences 5 Marks Example 2 Marks	**7**
	iii.	What is feature engineering, and why is it important for the success of machine learning models? Features engineering 3 Marks Importance of machine learning 4 Marks	**7**

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