Reg. No.

MBA Degree (FT) III semester End Semester Examination – December, 2022
21-371-0303: BUSINESS ANALYTICS
(Regular)

Time: 3 Hours **Max. Marks: 50**

Course Outcomes: On completion of the course, the student will be able to:-

CO1	Recall descriptive statistics, various methods, analytical methods, various distributions, regression and methods, correlation and techniques , forecasting etc
CO2	Enable students to recognize, understand and apply the language, theory and models of the field of business analytics; foster an ability to critically analyses, synthesize and solve complex unstructured business and management problems; encourage an aptitude for business improvement, innovation and entrepreneurial action.
CO3	Identify and describe complex business problems in terms of analytical models. Apply appropriate analytical methods to find solutions to business problems that achieve stated objectives.
CO4	• Analyse and evaluate appropriate business strategies,practices, and theories that inform and guide organizations to ensure sustainability. • To become familiar with the processes needed todevelop, report, and analyze business data. • To analyze the different types of analytics and the tools available to analyse them.
CO5	Evaluation of various alternatives and select the best alternatives, conduct what if analysis, Scenario Analysis and evaluate alternatives. Design a solution to a business dilemma, incorporating management practices and theories with principles of marketing, economics, accounting, operations management, and finance.
CO6	Create business reports that effectively communicate businessstrategies, practices, and goals using emerging technology andmanagement theories. To gain an understanding of how managers use business analytics to formulate and solve business problems and to support managerial decision making.

BL – Bloom's Taxonomy: *(L1- Remember, L2 - Understand, L3 – Apply, L4-Analyse, L5-Evaluate, L6-Create)*

PART A
(Answer ALL questions. Each question carries 2 marks)

Q No.	Questions	Marks	BL	CO
1	Enlist the different characteristics of Big data.	2	1	1
2	List any four libraries that are used for data analysis using Python	2	1	2
3	Describe the different components of a box plot?	2	2	1
4	What are the five steps of the design thinking process?	2	3	3
5	Differentiate between correlation and causality	2	3	3

(5X2=10 marks)

PART B

(*Answer ANY FIVE Questions. Each question carries 4 marks*)

Q. No.	Questions	Marks	BL	CO
6	Discuss how value stream mapping (VSM) helps managers analyze, design, and manage the flow of information in different business processes.	4	4	6
7	Investments in artificial intelligence (AI) and machine learning (ML) can deliver a high ROI by improving speed and efficiency, thus enhancing customer experience. Critically evaluate the role of AI and ML in contemporary organizations.	4	4	4
8	With the help of an example, elaborate the application of analytic hierarchy process (AHP).	4	3	4
9	Elaborate how various techniques in text analytics helps managers to automatically detect patterns and trends in voice and text channels, enabling them to quickly identify new business opportunities while customizing and monitoring customer experiences.	4	3	4
10	With the help of an example from retail sector, analyze how market basket analysis as a data mining technique will help managers in identifying purchase patterns and devise strategies.	4	4	5
11	Learning how to efficiently visualize data could be the foremost step towards using data analytics and data science for value-addition in organizations. Elaborate different data visualization techniques that will support data-driven decision making.	4	5	5
12	Evaluate the benefits of using cloud computing services in small and medium enterprises.	4	5	3

(5X4=20 marks)

PART C

(*Answer ANY TWO questions. Each question carries 10 marks*)

Q No.	Questions	Marks	BL	CO
13	Contemporary systems employ different machine learning algorithms, each with unique performance advantages. The accuracy, input data, and use cases of algorithms also vary. With the help of different business use cases, elaborate how choosing the right algorithm is the key to creating a machine learning model that supports enhanced data-driven decision making	10	5	4, 5

14	Develop a Python program to compute the degree of association between employee's perceived career opportunities at their workplace and their intention to stay with the organization. Also, plot a scatter plot to visualize the relationship between the two variables. Data was collected from 14 Senior Managers, using a 13-point Likert scale. Reported data are as follows: 1. Perceived Career Opportunities: [10,11,9,11,12,8,9,8,10,12,11,9,11,13] 2. Intention to Stay with the organization: [11,9,10,11,12,11,9,8,12,7,9,12,11,10] Report a hypothetical result and interpret the same. Also, provide implications for practice in business organizations.	10	6	3, 5
15	Founded in 2019, Pitman Labs is an international organization that provides technology solutions for sports industry. Recently, they reported that their system has run millions of simulations, and has come to the conclusion that Brazil had a 15.6% chance of winning the FIFA World Cup 2022. The team's forecast incorporates data on each team's structure, or the market worth of the team and the number of players participating. Together with statistical models for each team's playing strengths and the socioeconomic dynamics of each nation, such as GDP and population, many more parameters are taken into account, to run the simulations. Being a newly recruited Business Analyst in Pitman Labs, Ms. Fida Kauffman is directed to critically evaluate and create a report on the model parameters that has made the prediction.			
	(a) Prepare a report on the elements in value chain framework of the predictive model used by Pitman Labs, to predict the winners of FIFA World Cup 2022	6	6	5, 6
	(b) Being a computational algorithm that uses repeated random sampling to obtain the likelihood of a range of results of occurring, elaborate how Monte Carlo simulation can be used in field of sports analytics.	4	6	5

(2x10=20 marks)

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