Enrolment No.: ....

IIHMR UNIVERSITY

School of Pharmaceutical Management

MBA Pharmaceutical Management
Batch-15th (2023-2025)
Second Year, Term 4 End Term Examination, November 2024

EXAMINATION CELL IIHMR UNIVERSITY

PHRM-739 Business Data Analytics

Time - 3 Hour **Maximum Marks: 50 (Minimum Marks: 20)**

Instructions to students:

- **This question paper contains 2 printed pages.**
- **Don't write anything on the Question Paper except your Enrolment No.**

Part A

(Maximum Marks: 5)

Q1. Choose the correct option for the following (1 mark each):

(a). Which of the following types of data visualization is best suited for comparing the distribution of a variable across categories?

(i) Scatter Plot
(ii) Histogram
(iii) Box Plot
(iv) Correlation Matrix

(b). In a pharmaceutical business setting, which of the following analytics techniques would be most useful for identifying factors influencing drug sales trends over time?

(i) Predictive Analytics
(ii) Descriptive Analytics
(iii) Prescriptive Analytics
(iv) Diagnostic Analytics

(c). In R, which command is used to display the structure of a data frame?

(i) summary()
(ii) str()
(iii) head()
(iv) (view()

(d). In hypothesis testing, which test would be appropriate to assess the association between two categorical variables?

(i) t-test
(ii) Chi-square test
(iii) ANOVA
(iv) Linear Regression

(e). In time series analysis, what does the term "seasonality" refer to?

(i) Random fluctuations in data
(ii) Long-term trends
(iii) Regular patterns or cycles within data over specific intervals
(iv) Unpredictable data spikes

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Part B

(Maximum Marks: 15)

Answer the following questions (5 mark each).

Q2. Briefly explain the relevance of Business Analytics in decision-making specifically for the pharmaceutical industry. Provide examples.

Q3. Describe the purpose of using a Correlation Matrix in data analytics. How does it assist in data-driven decision-making?

Q4. What are the common components of time series data? Explain the importance of Stationarity in time series analysis.

Part C

(Maximum Marks: 30)

Answer the following questions in detail (10 mark each).

Q2. Discuss the various types of data analytics (Descriptive, Predictive, and Prescriptive) and their relevance in strategic decision-making within the pharmaceutical industry. Provide examples of each and explain how they can help a pharmaceutical company achieve competitive advantage.

Q3. A pharmaceutical company wants to understand the sales patterns of a new drug introduced last year. Using Descriptive Analytics, outline a step-by-step approach to analyze the sales data. Include suggestions on the types of data visualization techniques (e.g., histograms, scatter plots) that would be useful, and discuss how each method can help identify sales trends or patterns.

Q4. A healthcare provider wants to explore factors influencing patient satisfaction through Natural Language Processing (NLP). Describe the steps involved in processing qualitative data for text mining, including pre-processing and word cloud and conducting sentiment analysis. Discuss how sentiment analysis might inform business decision-making in a healthcare setting.

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