BRAINWARE UNIVERSITY

Term End Examination 2023-2024
Programme – MBA-2022
Course Name – Data Management and Analytics
Course Code - SM401
(Semester IV)

Full Marks : 60   **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question)   1 x 15=15

1. *Choose the correct alternative from the following :*

(i)   Which of the following best defines analytics?

a) Storing and organizing data   b) Analyzing data to gain insights
c) Presenting data in graphical form   d) Collecting data from various sources

(ii) Which of the following is NOT a commonly used data visualization tool?

a) Tableau   b) Excel
c) Python   d) Power BI

(iii) Which step in the analytics process involves examining data patterns and relationships to gain insights?

a) Data collection   b) Data preprocessing
c) Data analysis   d) Data visualization

(iv) What is the primary purpose of creating data visualizations in analytics?

a) To summarize large datasets   b) To communicate insights effectively
c) To perform statistical analysis   d) To collect raw data

(v)   What does predictive analytics primarily aim to do?

a) Analyze past data   b) Understand current trends
c) Forecast future outcomes   d) Optimize present operations

(vi) In the context of data analytics, what does exploratory data analysis primarily involve?

a) Drawing conclusions from data   b) Identifying patterns and relationships
c) Cleaning and preparing data   d) Communicating insights effectively

(vii) Which type of analytics focuses on analyzing past data to understand historical trends and patterns?

a) Predictive analytics   b) Diagnostic analytics
c) Descriptive analytics   d) Prescriptive analytics

(viii) In the context of data analytics, what is the purpose of creating predictive models?

a) To summarize historical data   b) To identify factors influencing outcomes
c) To communicate insights visually   d) To forecast future trends

(ix) In the case study "Competing on Analytics", what does Davenport suggest is a key characteristic of analytically competitive companies?

a) Reliance on intuition for decision-making

b) Limited investment in data and analytics technologies

c) Emphasis on data-driven decision-making

d) Disregard for customer feedback

(x) According to the article, what distinguishes leading companies from their competitors?

a) Their focus on traditional advertising methods

b) Their reliance on intuition over data-driven decisions

c) Their strategic use of analytics to drive decision-making

d) Their resistance to technological advancements

(xi) Calculate the mean of the following data set: 10, 20, 30, 40, 50.

a) 25

b) 30

c) 35

d) 40

(xii) Calculate the median of the following data set: 5, 10, 15, 20, 25.

a) 10

b) 15

c) 20

d) 25

(xiii) In a positively skewed distribution, where does the mean lie in relation to the median?

a) Mean > Median

b) Mean < Median

c) Mean = Median

d) Cannot be determined

(xiv) Calculate the standard deviation for the following data set: 10, 20, 30, 40, 50.

a) 5

b) 10

c) 15

d) 20

(xv) When evaluating a classification model, if the false positive rate is high, what does it indicate?

a) The model is making more correct predictions.

b) The model is making more incorrect positive predictions.

c) The model is making more incorrect negative predictions.

d) The model is underfitting the data.

Group-B
(Short Answer Type Questions)   3 x 5=15

2. What type of data is typically analyzed using the Chi-Square test?   (3)
3. Explain the null hypothesis in the context of the Chi-Square test.   (3)
4. You have data on the relationship between temperature and ice cream sales. How would you use correlation analysis to analyze this data?   (3)
5. Compare and contrast the advantages and limitations of using predictive analytics versus prescriptive analytics in making business-defining decisions.   (3)
6. Critically analyze the use of the mean as a measure of central tendency when dealing with ordinal or categorical data.   (3)

OR

Evaluate the impact of outliers on the mean and median in a dataset.   (3)

Group-C
(Long Answer Type Questions)   5 x 6=30

7. How did Harrahs Entertainment use analytics to gain a competitive advantage, according to the Davenport article?   (5)
8. Compare and contrast the advantages and disadvantages of using in-house data analytics teams versus outsourcing analytics services for businesses.   (5)
9. Compare and contrast parametric and non-parametric hypothesis tests, discussing their assumptions and applications.   (5)

10. What is the formula for calculating the Chi-Square test statistic? (5)
11. Explain the difference between one-way ANOVA and two-way ANOVA. (5)
12. Design a scenario where the median would be a more suitable measure of central (5)
tendency than the mean.

OR

Develop a strategy to detect and handle outliers in a dataset before calculating the mean (5)
and standard deviation.

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