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Candidate's Seat No:____

IMRS (Rep) Sem.-5 Examination
IIS/IMRS-54
Data Analytics-I
January-2026

Time : 2.30 Hours] **[Max.Marks : 70**

Instruction:

1) Questions 1, 2, 3, and 4 each carry 14 marks and have an alternative question (A/B format). Answer either (A) or (B) for each question.
2) Question 5 consists of 12 short questions, each carrying 2 marks. Answer any 7 out of these 12 questions.
3) Use of calculators is NOT allowed.

Q-1. **[A]** Define and explain the data analytics lifecycle. Discuss each stage of the lifecycle (data collection, preparation, analysis and visualization) in detail with examples of how each stage can be applied in a business context. **[14]**

OR

Q-1. **[B]** Explain the applications of data analytics in marketing, operations, and human resources. How does data-driven decision-making benefit businesses in these areas? **[14]**

Q-2. **[A]** Explain the advantages and limitations of primary data collection methods. Provide examples of how surveys and interviews can be applied effectively in business analytics. **[14]**

OR

Q-2. **[B]** Define measures of central tendency and measures of dispersion. Explain mean, median and mode as measures of central tendency; range, variance and standard deviation as measures of dispersion. Provide examples to illustrate their applications in business analytics. **[14]**

Q-3. **[A]** Describe the three types of probability distributions: normal, binomial and Poisson distributions. Explain how each distribution can be used in business analytics by providing examples for each case. **[14]**

OR

Q-3. **[B]** Explain the concepts of sampling methods and sampling distribution in inferential statistics. Discuss the importance of sampling in data analytics and how confidence intervals are used to make inferences about a population. **[14]**

Q-4. **[A]** What are the principles of effective data visualization? Explain the types of charts and graphs (bar charts, pie charts, line charts, scatter plots) and discuss when each type is most appropriate for displaying data. **[14]**

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OR

Q-4. **[B]** What are histograms and boxplots? Explain their role in data visualization and how they help in identifying data distribution and patterns. **[14]**

Q-5. **Briefly Answer any 7 out of 12.** **[14]**

[A] List any two data cleaning techniques used in data analytics.

[B] What is big data? Explain with an example.

[C] Explain the difference between primary and secondary data.

[D] Define data quality and mention two data quality concepts.

[E] Explain the term 'data integration' in the context of data processing.

[F] Explain what is meant by the term 'confidence interval'.

[G] Define 'null hypothesis' in the context of hypothesis testing.

[H] What is the purpose of using a scatter plot in data visualization?

[I] Define 'descriptive statistics' and mention one of its key uses in data analysis.

[J] List any two data collection techniques used in primary data collection.

[K] Define data quality and mention two data quality concepts.

[L] What is the main purpose of using histograms in data visualization?

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