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| **SESSION** | **MARCH 2025** |
| **PROGRAM** | **BACHELOR OF COMMERCE (B.COM.)** |
| **SEMESTER** | **III** |
| **COURSE CODE & NAME** | **DCM 2104 BUSINESS STATISTICS** |
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**Assignment Set – 1**

**Q1. Discuss briefly primary and secondary data. Mention the methods of collecting primary data and secondary data. (4 + 6 Marks)**

**Ans 1.**

**Primary Data**

Primary data refers to data that is collected firsthand by the researcher for a specific purpose. It is original and raw data that has not been previously published or processed. This type of data is collected directly from the source through various methods such as surveys, interviews, observations, or experiments.

Primary data is highly reliable and relevant because it is collected with a specific research objective in mind. However, collecting primary data can be time-consuming and costly. It is

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**Q2. From the following data, compute the values of:**

**a) Upper and lower quartiles**

**b) Median**

|  |  |  |  |
| --- | --- | --- | --- |
| **Marks** | **No. of Students** | **Marks** | **No. of Students** |
| **0–10** | **11** | **50–60** | **33** |
| **10–20** | **18** | **60–70** | **22** |
| **20–30** | **25** | **70–80** | **15** |
| **30–40** | **28** | **80–90** | **12** |
| **40–50** | **30** | **90–100** | **10** |

**(5 + 5 Marks)**

**Ans 2.**

### Given Data (Grouped Frequency Table)

| Marks (Class Interval) | Frequency (f) |
| --- | --- |
| 0 – 10 | 11 |
| 10 – 20 | 18 |
| 20 – 30 | 25 |
| 30 – 40 | 28 |
| 40 – 50 | 30 |
| 50 – 60 | 33 |
| 60 – 70 | 22 |
| 70 – 80 | 15 |
| 80 – 90 | 12 |
| 90 – 100 | 10 |
| **Total (N)** | **204** |

**Calculate Cumulative Frequency (CF):**

| Class Interval | f | Cumulative Frequency (CF) |
| --- | --- | --- |

**Q3. Explain the index number with its types. (5 + 5 Marks)**

**Ans 3.**

**Meaning of Index Number**

an index number is a statistical tool used to measure changes in the level of a phenomenon over time, location, or group. It expresses the relative change of variables like prices, quantities, or values compared to a base period. The base period is usually given an index value of 100, and subsequent values indicate the percentage increase or decrease from the base.

Index numbers are widely used in economics and business to track inflation, cost of living,

**Assignment Set – 2**

**Q4. Explain time series with four types or elements of variation. (4 + 6 Marks)**

**Ans 4.**

**Meaning of Time Series**

time series refers to a sequence of data points recorded at regular intervals over time. It helps in analyzing how a variable changes over time and in forecasting future values based on historical trends. Time series is widely used in fields like economics, business forecasting, and social sciences.

Each observation in a time series is affected by multiple factors, and the goal is to identify patterns or trends within the data to make informed decisions. Time series data may be recorded

**Q5. What do you mean by Hypothesis and Hypothesis testing? State differences between type I and II errors. (5 + 5 Marks)**

**Ans 5.**

#### Hypothesis – Meaning

a hypothesis is a tentative assumption or a statement made about a population parameter which is tested using statistical methods. It provides a basis for drawing conclusions from sample data and is used in decision-making under uncertainty. Hypotheses are usually framed in pairs:

* **Null Hypothesis (H₀)**: This states that there is no significant difference or effect. It

**Q6. Elaborate chi-square test and its significance in statistical analysis. (5 + 5 Marks)**

#### Ans 6.

#### Chi-Square Test – Meaning

The chi-square (χ²) test is a non-parametric statistical tool used to determine whether there is a significant association between two categorical variables or whether the observed distribution of frequencies differs from the expected distribution. It is used when data is in the form of counts or frequencies.

There are two main types of chi-square tests:

* **Chi-Square Test of Independence**: To test if two variables are independent (e.g., gender vs. product preference).