a) Oral Presentation used in Research (5 marks)

An **oral presentation** is a method of communicating research findings verbally to an audience using speech, visuals, and discussion.

Key points:

- Used in **seminars, conferences, viva-voce, and research meetings**
- Helps explain **research objectives, methodology, results, and conclusions**
- Uses **slides, charts, graphs** to support explanation
- Encourages **interaction, feedback, and clarification**
- Improves **communication skills and confidence** of the researcher

Conclusion:
Oral presentation is an effective way to disseminate research findings clearly and interactively.

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b) Illustrate References in a Research Paper (5 marks)

References acknowledge the sources used in a research paper and avoid plagiarism.

Purpose of references:

- Give credit to original authors
- Increase credibility of research
- Allow readers to verify information

Common formats (example – APA style):

- **Book:**
  Author, A. (Year). *Title of book*. Publisher.
- **Journal:**
  Author, A. (Year). Title of article. *Journal Name*, Volume(Issue), pages.
- **Website:**
  Author. (Year). Title. URL

Conclusion:
Proper referencing strengthens academic integrity and research authenticity.

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c) Compare Conclusion and Discussion (5 marks)

Basis	Discussion	Conclusion
Purpose	Interprets results	Summarizes findings
Content	Explains **why and how** results occurred	States **what was found**
Length	Detailed	Short and concise
New ideas	Allowed	Not allowed
Placement	Before conclusion	At the end

Conclusion:
Discussion explains results, while conclusion gives final outcomes and recommendations.

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d) Justify Confidence Interval in Detail (5 marks)

A **confidence interval (CI)** is a range of values within which a population parameter is expected to lie with a certain level of confidence.

Key points:

- Common confidence levels: **90%, 95%, 99%**
- Shows **precision and reliability** of estimates
- Wider interval → less precision
  Narrower interval → more precision
- Helps in **decision making** and hypothesis testing
- Preferred over point estimates as it shows uncertainty

Conclusion:
Confidence interval provides a realistic and reliable estimate of population parameters.

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e) Explain Analysis of Variance (ANOVA) (5 marks)

ANOVA is a statistical technique used to compare **means of three or more groups**.

Objectives of ANOVA:

- Test whether group means differ significantly
- Analyze variation **within groups and between groups**

Types of ANOVA:

- One-way ANOVA
- Two-way ANOVA

Applications:

- Education research
- Medical experiments
- Industrial quality testing

Conclusion:
ANOVA helps determine significant differences among multiple groups efficiently.

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f) Explain Objectives of Hypothesis (5 marks)

A **hypothesis** is a testable statement about the relationship between variables.

Objectives:

- Provide direction to research
- Help in **testing assumptions**
- Guide data collection and analysis
- Enable statistical testing
- Help in drawing valid conclusions

Conclusion:
Hypothesis forms the backbone of scientific research and decision-making.

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g) Justify Importance of a Well-Structured Research Design (5 marks)

A **research design** is a blueprint for conducting research.

Importance:

- Ensures systematic data collection
- Minimizes errors and bias
- Saves time and resources
- Improves accuracy and reliability
- Helps achieve research objectives effectively

Conclusion:
A well-structured design ensures quality, validity, and success of research.

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h) Summarize Chi-Square Test and Its Applications (5 marks)

The **Chi-square test** is a non-parametric statistical test used to examine relationships between categorical variables.

Key features:

- Compares **observed and expected frequencies**
- Used for **qualitative data**
- Does not require normal distribution

Applications:

- Test of independence
- Test of goodness of fit
- Used in social sciences, marketing, and biology

Conclusion:
Chi-square test is widely used to analyze association between categorical variables.
