

THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF PSYCHOLOGY & COUNSELLING
2024/2025 – SEMESTER I —FINAL EXAMINATION



BSC (HONS) IN PSYCHOLOGY
PLU5305 - ADVANCED RESEARCH METHODS AND STATISTICS IN PSYCHOLOGY-
LEVEL 5
FINAL EXAMINATION PAPER
DURATION: 03 HOURS

DATE: 09/05/2025

TIME: 9.30 am – 12.30 pm

SECTION 2: STRUCTURED ESSAY QUESTIONS (60 MARKS)

Choose 04 out of the 06 questions given below and answer using the provided answer sheets.

- 2.1 A study aims to examine the relationship between the number of hours students spend studying per week and their exam scores (out of 100). The following table represents a sample of students' study hours and their corresponding exam scores:

Study Hours per Week	Exam Score (out of 100)
2	50
4	60
6	70
8	80
10	90

- a) Briefly explain the term Correlation Analysis (3 marks)
- b) Draw a scatterplot to visually represent the relationship between study hours and exam scores. (4 marks)
- c) Calculate the Pearson Correlation coefficient (5 marks)
- d) Interpret the relationship among the variables. Discuss any observable trends, patterns, or anomalies in the data, such as a positive or negative correlation, and the strength and direction of the relationship. (3 marks)
- 2.2 A company is trying to determine how the number of hours employees work each week affects their productivity. The following data represents the number of hours worked per week (X) and the corresponding productivity score (Y) for five employees:

Hours Worked per Week (X)	Productivity Score (Y)
30	75
35	82
40	86
45	90
50	93

- a) Perform a Simple Linear Regression Analysis by calculating the regression equation. (7 marks)
- b) What does it tell you about the relationship between hours worked and productivity? (4 marks)
- c) Use the regression equation to predict the productivity score for an employee working 42 hours per week (4 marks)

2.3 A company is investigating how different product features affect customer satisfaction. They are specifically interested in determining whether the type of product feature (e.g., durability, design, ease of use) influences customer satisfaction scores. Additionally, they are exploring whether customer satisfaction is influenced by the product's price range.

- a) Explain how a One-way ANOVA could be used to determine if there are significant differences in customer satisfaction based on different product features. (5 Marks)
- b) What are the potential limitations of using a One-way ANOVA in this study? (5 Marks)
- c) Explain the difference between One-way ANOVA and Two-way ANOVA (5 Marks)

2.4 Research in psychology is essential for understanding human behavior and mental processes. Broadly, psychological research can be classified into two types: applied research and basic research. Each type of research serves different objectives and utilizes distinct methods to address various aspects of human psychology.

- a) Discuss the key differences between these two types of research and provide examples of each. (3 marks)
- b) Explain the different types of variables in psychological research (moderator, mediator, control, and confounding). (12 marks)

2.5 Factor analysis is a cornerstone technique in psychological research, essential for uncovering the underlying structure of complex psychological phenomena.

- a) Explain the concept of Factor Analysis, its purpose, and how it can be used in psychological research. (5 marks)
- b) Explain the significance of latent variables in factor analysis and provide an example from psychological research. (5 marks)
- c) Discuss the assumptions of factor analysis that must be met for the technique to be valid. (5 marks)

- 2.6 Using qualitative research methodology, a researcher investigates university students' experiences with online learning during the COVID-19 pandemic.
- a) Why is a qualitative approach suitable for investigating this research? Briefly provide a rationale. (3 marks)
 - b) Identify two possible data collection methods to gather data from university students if the researcher collects data during the Pandemic Period? (2 marks)
 - c) Identify three (03) possible key informants for this study? (3 marks)
 - d) If the researcher analyses the data by using thematic analysis, what are the key themes that may emerge from qualitative data regarding students' academic engagement. Identify possible four themes. (4 marks)
 - e) What ethical considerations should be taken into account when collecting qualitative data from university students during the pandemic, especially regarding privacy and informed consent? (3 marks)

-----END OF QUESTION PAPER-----