Gratia Christian College
宏恩基督教學院

Examination

Programme	:	General Education
Academic Year (Semester)	:	2025 - 2026 (Semester 1)
Course Code	:	GEN3403B
Course Title	:	Introduction to Statistics
Date	:	23/12/2025 (Tue)
Time	:	10:00 am – 12:00 pm
Time Allowed	:	2 Hours
Weighting	:	40% of the Overall Marks

Student ID No. : _____

This paper has **3** pages (including this cover page).

Instructions to candidates:

1. This question paper consists of 2 sections. Section A contains 20 multiple-choice questions which should be done in 30 minutes. Section B contains 5 data analysis questions which should be done in 90 minutes.
2. Section A should be completed in Moodle using a safe exam browser. Section B should be completed in the Answer Sheet Microsoft Word file on Moodle. You should export the file into PDF format before submitting to Moodle.
3. This paper carries 100 marks, which are allocated to each question as indicated.
4. Section A is closed book. Section B is open book. You can use any notes or notes in your VDI/notebook, but you cannot use your phone or any other electronic device. If any unauthorized materials or aids are found on a candidate during the examination, the candidate will be subject to disciplinary action.

Do not turn this page until you are told to do so.

You should hand in this question paper after the examination.

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Section B: Data Analysis (60 marks)

Report the answers for all the questions and copy the appropriate graphs into the answer sheet in Microsoft Word format. At the end of the exam, please upload your answers in PDF format through Moodle. You should use SPSS to analyse the dataset.

The report has a word limit of 300 words. The total marks awarded for the content of the report are 56 marks, and 4 additional marks are given for (1) APA-style reporting (2 marks) and (2) effective communication for results (2 marks). Partial marks will also be given for relevant SPSS output.

ECEburnout.sav contains data from a sample of early childhood educators (ECE) in the USA ($N = 58$). It contains data on these main variables:

- **Burnout: Emotional Exhaustion**: Emotional Exhaustion is one aspect of burnout which is measured by 9 items on a 0-6 scale (0 = never, 6 = every day). A sample item is "I feel emotionally exhausted because of my work." Higher scores indicate more severe burnout.
- **Personal Stress**: Personal Stress is measured through the Personal Stress Inventory (PSI) 10 items on a 0-4 scale (0 = never, 4 = very often). Higher scores indicate more stress. A sample item is "In the last month, how often have you felt nervous and stressed?"

The researchers also collected data on whether the educator is the lead or senior teacher from the sample.

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The following is the codebook for the important variables:

Codebook of ECEburnout.sav

Variable Name	Variable Label	Type of Variable	Additional Information
PSIsum		Quantitative	Sum of personal stress scores. Higher scores indicates higher stress.
Burn_EEav		Quantitative	Average of burnout: emotional exhaustion scores. Higher scores indicates higher burnout.
Lead	Are you the lead or senior teacher?	Categorical	0 = No, 1 = Yes
PSI_1 to PSI_10		Categorical	Separate item scores for PSI. Variable names ended in R indicate reverse-coded variables.

Write a report of the results, including answers to the following three questions:

1. How many lead or senior teachers are there in this sample, and what is the corresponding percentage? (4 marks)
2. Describe the distribution of emotional exhaustion scores by using a histogram with a normal distribution curve to help you, and put the histogram into your answer. Then, answer the question: what is the typical emotional exhaustion score in this sample, and write down the corresponding variability statistic, minimum, maximum, skewness, and kurtosis values. (8 marks)
3. What is the internal consistency reliability of the Personal Stress Inventory (PSI)? (4 marks)

And answering these two questions below by checking statistical assumptions and using appropriate statistical tests:

4. Do lead educators and non-lead educators have different degrees of emotional exhaustion? If so, who has higher emotional exhaustion? (20 marks)
5. Is there a relationship between personal stress and emotional exhaustion? Comment on the strength and direction of this relationship. (20 marks)

~ END OF EXAM PAPER ~

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