24U272

Name : ....

Reg. No : ....

SECOND SEMESTER UG DEGREE EXAMINATION, APRIL 2025

(FYUGP)

CC24UCSC2MN103 - FUNDAMENTALS OF SPSS AND R PROGRAMMING

(Computer Science - Minor Course)

(2024 Admission - Regular)

Time: 2.0 Hours

Maximum: 70 Marks

Credit: 4

Part A (Short answer questions)

Answer *all* questions. Each question carries 3 marks.

1. Describe the process of creating a scatterplot in SPSS.   [Level:2] [CO1]

2. Explain the purpose of the "Split File" function in SPSS. How does it help in analyzing data for different groups within the same dataset.   [Level:2] [CO1]

3. Describe how to create a frequency distribution table in SPSS.   [Level:2] [CO1]

4. Explain when you would use 'Recode into Same Variable' in SPSS. Provide an example scenario.   [Level:2] [CO1]

5. Discuss the assumptions required for performing the Chi-Square test.   [Level:3] [CO2]

6. Outline the steps involved in performing a Mann-Whitney U test using SPSS. What are the key outputs to look for?   [Level:3] [CO2]

7. Explain the main features of R programming that make it popular for statistical computing and data analysis.   [Level:2] [CO3]

8. Describe how to plot scatter plot in R.   [Level:2] [CO3]

9. Differetiate eigen value and eigen vector in R.   [Level:2] [CO3]

10. Compare and contrast the Wilcoxon test, Mann-Whitney test, and Kruskal-Wallis test. Discuss the scenarios where each test would be most appropriate. (Use R)   [Level:2] [CO4]

(Ceiling: 24 Marks)

Part B (Paragraph questions/Problem)

Answer *all* questions. Each question carries 6 marks.

11. Explain the process of assigning labels to dummy numbers in SPSS. Why is it essential to label dummy variables appropriately in data analysis?   [Level:2] [CO1]

12. Discuss the difference between "Data View" and "Variable View" in SPSS? Provide an example of what you can do in each view.   [Level:2] [CO1]

13. Discuss the measures of central tendencies in descriptive statistics.   [Level:3] [CO2]

14. Describe a real-life scenario where One-Way ANOVA is useful. How would you analyze it in SPSS?   [Level:3] [CO2]

15. Explain how to perform a full outer join using both the merge() function and the dplyr package in R. Provide code examples for each method.   [Level:2] [CO3]

16. Describe how a csv file, text file and excel Export from R.   [Level:2] [CO3]

17. Describe the main advantages of using a two-way ANOVA over a one-way ANOVA. Explain the steps involved in conducting a two-way ANOVA and provide an example research question that could be analyzed using this method. (Use R)   [Level:2] [CO4]

18. Describe the process of performing multiple linear regression. Discuss the assumptions and conditions under which this method is suitable, and provide an example scenario. (Use R)   [Level:2] [CO4]

(Ceiling: 36 Marks)

Part C (Essay questions)

Answer any *one* question. The question carries 10 marks.

19. Discuss the assumptions of linear regression. Why are these assumptions important? Provide examples of scenarios where these assumptions might be violated.   [Level:3] [CO2]

20. Compare and contrast the X-bar chart and the R chart. Discuss the assumptions, conditions, and steps involved in creating these charts. Provide a detailed example scenario, including the calculation of control limits and interpretation of results. Highlight the differences in their applications and the types of data they are best suited for. (Use R)   [Level:2] [CO4]

(1 × 10 = 10 Marks)

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