QP Code: U25B044

Reg. No : .....

Name : .....

ST MARY'S COLLEGE (AUTONOMOUS), THRISSUR-20

II SEMESTER (FYUGP) DEGREE EXAMINATION, MARCH 2025

B.A/B.Sc/B.Com/BSW

CSC2MN103 : FUNDAMENTALS OF SPSS AND R PROGRAMMING

2024 Admission Onwards

(Credits: 4)

Time: 2 Hours **Maximum Marks: 70**

Section A

*Answer **all**. Each question carries **3** Marks* ***(Ceiling: 24 Marks)***

1. How do you modify column width, font style and font sizes of a table in SPSS? [BTL2]
2. How do you compute total score variable in SPSS? [BTL3]
3. What are the steps to create and save an SPSS data file? [BTL1]
4. How do you calculate standard deviation and coefficient of variation in SPSS? [BTL3]
5. Write short notes on parametric tests. Name any two parametric tests. [BTL1]
6. What are the different 'number' data types in R? Give examples [BTL2]
7. Explain the purpose of the Workspace in R. [BTL2]
8. How do you interpret Cpk value of less than 1 in the context of process capability analysis using R? [BTL4]
9. You have two groups of data in R. Write the R code to perform an independent samples t-test assuming unequal variances. [BTL3]
10. Which R function is used to create a linear regression model? Write the syntax. [BTL2]

Section B

*Answer **all**. Each question carries **6** Marks* ***(Ceiling: 36 Marks)***

11. How would you use the "Recode Into Different Variable" feature in SPSS to group customer ages into age ranges? [BTL3]
12. What are the different windows in the SPSS interface and their functions? [BTL1]
13. Analyze a scenario where the Kruskal-Wallis test would be preferred over one-way ANOVA in SPSS. Why is it useful for ordinal data? [BTL4]

Turn Over

14. Explain how linear regression is performed in SPSS. How do you interpret the coefficients and significance values in the output? [BTL3]

15. Compare the creation of histograms and box plots in R. How do these visualizations help in understanding the data distribution? [BTL3]

16. A <- matrix(c(4, 2, 2, 3), nrow = 2, byrow = TRUE). Write steps to compute eigen values and eigen vectors. [BTL5]

17. What are $\bar{X}$, R, and S charts, and how do they differ in statistical process control? [BTL2]

18. How would you use the Kruskal-Wallis test in R to compare the salaries of employees across three departments? [BTL3]

Section C

*Answer **any one**. Each question carries **10** Marks* ***(1x10=10 Marks)***

19. Analyze the Mann-Whitney U test and the Wilcoxon Signed-Rank test in SPSS. Compare their applications and discuss scenarios where each test is preferred. [BTL4]

20. Create a dataset in R containing variables for age and income. Describe the operations in R to compute the trace and transpose of a matrix created from these variables. [BTL5]

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