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Name:

Reg.No:

FIFTH SEMESTER B.Voc. DEGREE EXAMINATION, NOVEMBER 2024

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC21U SDC5 SD15 - STATISTICAL DATA ANALYSIS USING SPSS

(Information Technology - Skill Component Course)

(2021 Admission onwards)

Time : 2.5 Hours

Maximum : 80 Marks

Credit : 4

Part A (Short answer questions)

Answer *all* questions. Each question carries 2 marks.

1. What is SPSS, and what is its primary use?
2. What is the difference between numeric and string variables in SPSS?
3. In SPSS what are the different variable types?
4. In SPSS, what happens when we split a dataset?
5. How can you change the font style and size in tables in SPSS?
6. In SPSS, how do you create a bar diagram (bar chart) to represent categorical data?
7. Explain the steps of construction of pie chart using SPSS.
8. Explain the procedure of construction of histogram using SPSS.
9. What is the purpose of a boxplot?
10. Explain the difference between simple linear regression and multiple linear regression.
11. What do you mean by Parametric test?
12. What is the test statistic for testing the difference of population means in small sample?
13. What is the difference between paired t-test and independent t-test?
14. What do you mean by wilcoxon signed rank test for paired samples?
15. Give the test statistic of F-test.

(Ceiling: 25 Marks)

Part B (Paragraph questions)

Answer *all* questions. Each question carries 5 marks.

16. You have a data set representing the number of books read by students in a reading competition: {5, 6, 7, 7, 8, 9, 10, 11, 12, 13}. Calculate the median and mode of number of books read.
17. What is the concept of central tendency in statistics, and why is it important in data analysis?

18. Calculate the variance for the following grouped data:

Class Interval	Frequency
5 - 10	8
10 - 15	12
15 - 20	10
20 - 25	7

19. What is skewness in statistics? Explain how a positively skewed distribution looks like.

20. Explain the methods for finding the Correlation Coefficient.

21. Find regression equation of Y on X

X : 3, 6, 9, 12, 15

Y : 2, 5, 7, 10, 12

22. A manufacturer claims that the mean lifespan of their light bulbs is 1000 hours. A consumer group selects a random sample of 25 light bulbs and finds that their mean lifespan is 980 hours with a standard deviation of 40 hours. Is there enough evidence to conclude that the manufacturer's claim is inaccurate?

23. Explain Non parametric? Given an example for non parametric test.

(Ceiling: 35 Marks)

Part C (Essay questions)

Answer any *two* questions. Each question carries 10 marks.

24. Describe the types of charts and graphs available in SPSS for data visualization.

25. Calculate the Spearman rank correlation coefficient for the dataset representing the rankings of 10 movies by two different movie reviewers:

Reviewer 1: 6, 1, 7, 3, 2, 5, 4, 9, 8, 10

Reviewer 2: 5, 2, 6, 1, 3, 7, 8, 9, 4, 10

26. You have four different fertilizers, and you want to test if they have a significant effect on the growth of plants. Each group represents a different fertilizer type.

Fertilizer A: 15, 18, 20, 14, 17

Fertilizer B: 14, 19, 22, 16, 21

Fertilizer C: 16, 20, 18, 15, 19

Fertilizer D: 13, 17, 21, 12, 16

Perform a one-way ANOVA analysis at a significance level of 0.05 ($\alpha = 0.05$).

27. Explain the step by step procedure of ANOVA in Two way classification.

(2 × 10 = 20 Marks)
