

Reg. No.

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G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS), KOVILPATTI – 628 502.



UG DEGREE END SEMESTER EXAMINATIONS - NOVEMBER 2024.

(For those admitted in June 2021 and later)

PROGRAMME AND BRANCH: B.C.A.

| SEM | CATEGORY | COMPONENT | COURSE CODE | COURSE TITLE |
|-----|------------|-----------|-------------|---|
| V | PART - III | CORE | U21CA507 | STATISTICAL COMPUTING USING R PROGRAMMING |

Date & Session: 08.11.2024 / FN

Time : 3 hours

Maximum 75 Marks

| Course Outcome | Bloom's K-level | Q. No. | SECTION - A (10 X 1 = 10 Marks) Answer <u>ALL</u> Questions. |
|----------------|-----------------|--------|--|
| CO1 | K1 | 1. | What is R primarily used for? a) Web Development b) Statistical Computing and Graphics c) Database Management d) Game Development |
| CO1 | K2 | 2. | Which function would you use to find the number of characters in a string in R? a) nchar() b) length() c) charcount() d) countchar() |
| CO2 | K1 | 3. | _____ function is used to create a vector in R. a) vector() b) c() c) list() d) matrix() |
| CO2 | K2 | 4. | Which function returns the dimensions of an array in R? a) dim() b) length() c) ncol() d) nrow() |
| CO3 | K1 | 5. | Which function is used to create a list in R. a) list() b) vector() c) c() d) array() |
| CO3 | K2 | 6. | _____ function can be used to add a new column to an existing data frame in R. a) cbind() b) rbind() c) append() d) merge() |
| CO4 | K1 | 7. | _____ function is commonly used to read data from a text file in R. a) read.csv() b) read.table() c) scan() d) import() |
| CO4 | K2 | 8. | What type of data is best visualized using a histogram? a) Categorical data b) Continuous data c) Ordinal data d) Nominal data |
| CO5 | K1 | 9. | What is the measure of central tendency that represents the middle value in a sorted data set? a) Mean b) Median c) Mode d) Range |
| CO5 | K2 | 10. | Which statistical test is used to determine the independence of two categorical variables? a) Chi-Square Test b) T-Test c) ANOVA d) Z-Test |
| Course Outcome | Bloom's K-level | Q. No. | SECTION - B (5 X 5 = 25 Marks) Answer <u>ALL</u> Questions choosing either (a) or (b) |
| CO1 | K3 | 11a. | Write the key differences between the R console and the R script editor in RStudio. (OR) |
| CO1 | K3 | 11b. | Demonstrate how you would use the cat() function to print a combination of text and variable values in R. |

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| CO2 | K3 | 12a. | Find the various function of vectors with an example. (OR) |
| CO2 | K3 | 12b. | Write a R program to create a two-dimensional 5x3 array of sequence of even integers greater than 50. |
| CO3 | K4 | 13a. | Determine how to access the List elements? Give an example. (OR) |
| CO3 | K4 | 13b. | Illustrate R program to create a data frame from four given vectors. |
| CO4 | K4 | 14a. | Analyze the impact of data formatting when exporting a data frame from R to a text file. (OR) |
| CO4 | K4 | 14b. | Compare Kernel Density Plots to Histograms for data distribution visualization. What are the benefits and drawbacks of using Kernel Density Plots? |
| CO5 | K5 | 15a. | Assess to create a contingency table in R, and what are its applications in data analysis? (OR) |
| CO5 | K5 | 15b. | Criticize Pearson correlation coefficient, and how does it differ from the Spearman rank correlation coefficient in terms of data assumptions? |

| Course Outcome | Bloom's K-level | Q. No. | SECTION - C (5 X 8 = 40 Marks) Answer <u>ALL</u> Questions choosing either (a) or (b) |
|----------------|-----------------|--------|--|
| CO1 | K3 | 16a. | Construct a R program to take input from the user (name and age) and display the values. Also print the version of R installation. (OR) |
| CO1 | K3 | 16b. | Determine the mathematical functions and string function used in R with an example. |
| CO2 | K4 | 17a. | Write a R program to create three vectors a,b,c with 3 integers. Combine the three vectors to become a 3x3 matrix where each column represents a vector. Print the content of the matrix. (OR) |
| CO2 | K4 | 17b. | Examine how to create an array , access the element of an array and its function in R program with an example? |
| CO3 | K4 | 18a. | Analyze how to create a factors and accessing the components in factors using R program? (OR) |
| CO3 | K4 | 18b. | Illustrate the various data frame in R program. Give an example. |
| CO4 | K5 | 19a. | Write a R program to create a simple bar plot of five subjects marks. (OR) |
| CO4 | K5 | 19b. | Justify main R packages used to read data from Excel files, and how do they handle multi-sheet Excel files? |
| CO5 | K5 | 20a. | Interpret the key components of Descriptive Statistics, and how do they provide insights into a dataset? (OR) |
| CO5 | K5 | 20b. | Interpret the significance of analyzing correlation and covariance at successive lags, particularly in time series analysis? |