

Basavarajeswari Group of Institutions

2024 SCHEME

BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT

(Autonomous Institute under Visvesvaraya Technological University, Belagavi)

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Course Code

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Third Semester MCA Degree Examinations, January 2026

STATISTICAL ANALYSIS USING R

Duration: 3 hrs

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Missing data, if any, may be suitably assumed

<u>Q. No</u>	<u>Question</u>	<u>Marks</u>	<u>(RBTL:CO: PI)</u>
<u>MODULE – 1</u>			
1.	a. Explain the key features and major applications of R programming.	10	(2:1:1.4.1)
	b. Describe the components of the R Studio IDE.	10	(2:1:1.4.1)
(OR)			
2.	a. Define a function and explain user-defined functions in R with an example.	10	(2:1:2.5.2)
	b. Apply sorting techniques in R and demonstrate the use of sort() and order() functions.	10	(3:1:2.5.2)
<u>MODULE – 2</u>			
3.	a. List and explain the techniques used in R for visualization of data.	10	(2:2:1.4.1)
	b. Write a script in R to demonstrate scatter plot and box plot.	10	(3:2:1.4.1)
(OR)			
4.	a. Explain basic plotting functions plot(), hist() and barplot() in R.	10	(2:2:2.5.2)
	b. Apply plot customization techniques for axes, labels, legends, and colours using R script.	10	(3:2:2.5.2)
<u>MODULE – 3</u>			
5.	a. Explain the measures of central tendency and their significance.	10	(2:3:1.4.1)
	b. Differentiate between mean, median, and mode with suitable examples.	10	(2:3:1.4.1)
(OR)			
6.	a. Define measures of variability and explain range and variance.	10	(2:3:2.5.2)
	b. Apply the summary() function in R for different data structures.	10	(3:3:2.5.2)
<u>MODULE – 4</u>			
7.	a. Define hypothesis testing and explain the steps involved.	10	(2:4:1.4.1)
	b. Apply a one-sample t-test in R with a suitable example.	10	(3:4:1.4.1)

(OR)

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| 8. | a. | Explain the concept of correlation and its types. | 10 | (2:4:2.5.2) |
| | b. | Apply ANOVA in R to compare means of multiple groups. | 10 | (3:4:2.5.2) |

MODULE – 5

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| 9. | a. | Explain the working of predictive analytics and its key benefits. | 10 | (2:5:1.4.1) |
| | b. | Describe linear regression and its assumptions. | 10 | (2:5:1.4.1) |

(OR)

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| 10. | a. | Explain logistic regression with a suitable example. | 10 | (2:5:2.5.2) |
| | b. | Apply the concept of Variance Inflation Factor (VIF) to detect multi-collinearity. | 10 | (3:5:2.5.2) |

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