

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BCA DEGREE EXAMINATION MAY 2026
(Fifth Semester)
Branch – COMPUTER APPLICATIONS

R PROGRAMMING

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	In R, the data structure that can store elements of different types is _____. (a) Vector (b) Matrix (c) List (d) Factor	K1	CO1
	2	The function in R that combines vectors by columns or rows to form a matrix is _____. (a) merge() (b) cbind()/rbind() (c) bind() (d) attach()	K2	CO1
2	3	The function used to check the working directory in R is _____. (a) getwd() (b) setwd() (c) dir() (d) list.files()	K1	CO2
	4	Recursion is best described as _____. (a) A function calling itself (b) A loop inside a loop (c) A nested if condition (d) Function without parameters	K2	CO2
3	5	The primary scoping rule followed in R is _____. (a) Dynamic (b) Lexical (c) Block (d) Temporal	K1	CO3
	6	The function that applies a function over margins of an array or matrix in R is _____. (a) mapply() (b) apply() (c) tapply() (d) lapply()	K2	CO3
4	7	The function in R that allows parallel element-wise application over multiple vectors is _____. (a) vapply() (b) replicate() (c) mapply() (d) rowMeans()	K1	CO4
	8	A low-level graphics function in R is _____. (a) plot() (b) lines() (c) hist() (d) barplot()	K2	CO4
5	9	The dplyr function used to select specific columns from a data frame is _____. (a) select() (b) filter() (c) arrange() (d) mutate()	K1	CO5
	10	The device function used to open a new graphics window in R is _____. (a) dev.new() (b) dev.list() (c) dev.off() (d) pdf()	K2	CO5

Cont...

SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Differentiate between vectors, factors, and lists in R with suitable examples.	K2	CO1
	(OR)			
	11.b.	Identify the use of attributes in R objects and discuss their role in data frames.		
2	12.a.	Apply filtering and sorting operations on a data frame of employees based on salary.	K3	CO2
	(OR)			
	12.b.	Construct a grouped summary using group_by() and summarize() functions in dplyr.		
3	13.a.	Develop a recursive function in R to compute the Fibonacci sequence.	K4	CO3
	(OR)			
	13.b.	Analyze the differences between lexical and dynamic scoping rules in R.		
4	14.a.	Apply tapply() to calculate average marks grouped by subject.	K3	CO4
	(OR)			
	14.b.	Compare the behavior of lapply() and sapply() when applied to a nested list..		
5	15.a.	Construct a boxplot and customize its appearance using labels and colors	K4	CO5
	(OR)			
	15.b.	Examine the importance of device drivers in exporting R graphics.		

SECTION -C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Construct, manipulate, and subset lists, matrices, and data frames in R, highlighting similarities and differences.	K3	CO1
2	17	Analyze different techniques for reading large datasets from external files and evaluate their efficiency in R.	K4	CO2
3	18	Analyze the concept of recursion in R and evaluate its advantages and limitations compared to iterative approaches.	K5	CO3
4	19	Compare vectorized operations with loops in terms of performance and analyze their impact on code readability.	K4	CO4
5	20	Design a visualization report using multiple graphical methods and its customization options.	K5	CO4