

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MCom (CA) DEGREE EXAMINATION MAY 2026
(Third Semester)

Branch – **COMMERCE WITH COMPUTER APPLICATION**

DATA VISUALIZATION

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry **EQUAL** marks

$$(10 \times 1 = 10)$$

Module No.	Question No.	Question	K Level	CO
1	1	In R, which function is used to read tabular data such as .csv files? a) scan() b) read.table() c) matrix() d) vector()	K1	CO1
	2	If x <- c(2,4,6,8) and y <- c(1,2,3,4), what will x + y return? a) An error b) 3 6 9 12 c) 2 4 6 8 1 2 3 4 d) 1 2 3 4	K2	CO1
2	3	Which function is used to combine vectors by columns or rows in R? a) merge() b) rbind() and cbind() c) paste() d) bind()	K1	CO2
	4	Outline what will be the output of the following R code? x <- matrix(1:6, nrow=2) x a) 1 2 3 4 5 6 in a single row b) A 2 × 3 matrix filled column-wise c) A 3 × 2 matrix filled row-wise d) Error	K2	CO2
3	5	Which R function is used to create a list? a) vector() b) list() c) frame() d) matrix()	K1	CO3
	6	Infer what happens when we use attach(dataframe) in R? a) It deletes the dataframe. b) It allows direct access to dataframe columns without using \$. c) It concatenates two dataframes. d) It locks the dataframe from modification.	K2	CO3
4	7	Which R function is used to create a histogram? a) barplot() b) hist() c) pie() d) plot()	K1	CO4
	8	In ggplot2, which argument is used to map variables to aesthetics like x, y, and color? a) aes() b) geom() c) map() d) labs()	K2	CO4
5	9	Which function in R is most commonly used for high-level plotting? a) hist() b) boxplot() c) plot() d) barplot()	K1	CO5
	10	Illustrate what does the argument pch in the plot() function control? a) Line color b) Point type (symbol) c) Title of the plot d) Background color	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.	Explain the different types of vectors in R with examples.	K2	CO1
	(OR)			
	11.b.	Illustrate about the missing values in R? How are they handled?		
2	12.a.	Write R code to create two vectors a = (1,2,3) and b = (4,5,6). Combine them into a matrix using cbind and rbind.	K3	CO2
	(OR)			
	12.b.	Identify the use of repeat, next, and break statements in R with a simple example.		
3	13.a.	Write R code to create a list containing a numeric vector, a character vector, and a logical value. Show how to modify one element of the list.	K3	CO3
	(OR)			
	13.b.	Organize how to create a data frame with student Name, Age, and Marks. Access only the Marks column and calculate the average marks.		
4	14.a.	Analyse the difference between a bar chart and a histogram with suitable R functions and examples.	K4	CO4
	(OR)			
	14.b.	Write an R program to create a box plot of mtcars\$mpg and analyze the data spread revealed by the plot.		
5	15.a.	Inspect the difference between high-level and low-level plotting commands in R with examples.	K4	CO5
	(OR)			
	15.b.	Examine how graphics parameters (like par()) influence R plots. Illustrate with an example analysing the effect of multiple parameters.		

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	Write R code to create a numeric vector of first 10 natural numbers, generate a logical vector to identify which numbers are divisible by 3, and display the result.	K4	CO1
2	17	Import a CSV file named "students.csv" containing two columns: Name and Marks. Write R code to read the file, create a matrix of marks, and analyze how many students scored above 50.	K4	CO2
3	18	Using the built-in mtcars dataset, explain how to load it, convert it to a data frame, and determine how many cars have mpg greater than 25.	K4	CO3
4	19	Analyze a ggplot2 scatter plot of wt vs mpg from the mtcars dataset with customized title, axis labels, color by cyl, and a trend line, and the patterns observed	K4	CO4
5	20	Inspect the scatterplot matrix of the first four columns of the iris dataset and the patterns it reveals.	K4	CO5

Z-Z-Z

END