Reg. No.															

Question Paper Code	13523

B.E. / B.Tech. - DEGREE EXAMINATIONS, APR / MAY 2025

Third Semester

Electronics and Communication Engineering

20ECPW301 - R PROGRAMMING WITH LABORATORY

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	What will be the output of the following R code? > sqrt (-17) (a) -4.02 (b) 4.02 (c) NaN (d) 3.67	1	K1	CO1
2.	Which of the following is used for Statistical analysis in R language? (a) R Studio (b) Studio (c) Heck (d) K Studio	1	K1	CO1
3.	_____ initiates an infinite loop right from the start. (a) never (b) repeat (c) break (d) set	1	K1	CO2
4.	Point out the correct statement? (a) The only way to exit a repeat loop is to call break (b) Infinite loops should generally be avoided (c) Control structures like if, while, and for allow you to control the flow of an R program (d) All of the mentioned	1	K1	CO2
5.	Which function would you use to find the natural logarithm of each element in a numeric vector in R? (a) log() (b) exp() (c) log10() (d) abs()	1	K1	CO3
6.	Infer the following R code: R a <- c(1, 5, 3) b <- c(4, 2, 6) result <- pmax(a, b) What will be the value of result? (a) c(4, 5, 6) (b) c(1, 2, 3) (c) c(1, 2, 6) (d) c(4, 5, 3)	1	K2	CO3
7.	Which package in R provides advanced plotting functions like ggplot()? (a) graphics (b) lattice (c) ggplot2 (d) plotrix	1	K1	CO4
8.	Which R function is primarily used to create graphs and visualizations? (a) plot() (b) graph() (c) draw() (d) visualize()	1	K1	CO4
9.	Which of the following R packages is commonly used for reinforcement learning? (a) caret (b) rpart (c) Rcpp (d) RL	1	K1	CO5
10.	Which type of spline is commonly used to fit data in R? (a) B-splines (b) C-splines (c) Linear splines (d) Smoothing splines	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

11.	Enumerate the three different types of classes in R.	2	K2	CO1
12.	List the various ways of creating a dataframe in R.	2	K1	CO1
13.	If g<-function(x) return(x+1) Infer the output for body(g) , formals(g)	2	K1	CO2
14.	Explain the concept of recycling with appropriate examples	2	K2	CO2

15.	What is a markov chain?	*2*	*K1*	*CO3*
16.	List various Set operations and functions in R.	*2*	*K1*	*CO3*
17.	Show with the syntax the plot of data points x = (3,2,1,4) and y=(3,1,8,2) along with the coordinate pairs plotted.	*2*	*K2*	*CO4*
18.	Illustrate the use of legend() function and give the syntax for the same.	*2*	*K2*	*CO4*
19.	What is a labelled dataset?	*2*	*K1*	*CO5*
20.	Define the term overfitting in Machine learning?	*2*	*K1*	*CO5*
21.	Define Chi-squared Distribution.	*2*	*K1*	*CO6*
22.	Recall the importance of Covariance.	*2*	*K1*	*CO6*

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	Describe the Data Frame data structure in R with appropriate examples.	*11*	*K2*	*CO1*
		OR			
	b)	Elaborate the classes in R with examples.	*11*	*K2*	*CO1*
24.	a)	Explain in detail with example codes the different control statements in R.	*11*	*K2*	*CO2*
		OR			
	b)	Explain with example the return() in R, state the procedure for returning multiple values in R.	*11*	*K2*	*CO2*
25.	a)	Explain the differences between scan() and readline(), print() and cat().	*11*	*K2*	*CO3*
		OR			
	b)	Illustrate the Linear algebraic operations that can be performed on Matrices.	*11*	*K2*	*CO3*
26.	a)	Illustrate how graphs can be saved to files using appropriate R code and examples.	*11*	*K2*	*CO4*
		OR			
	b)	Show graphically the different plots in R. Give the syntax of each to get a minimum of four plots in a single window using suitable R function.	*11*	*K2*	*CO4*
27.	a)	Explain K-Mean clustering algorithm and discuss the pros and cons of the same.	*11*	*K2*	*CO5*
		OR			
	b)	Explain the unsupervised learning algorithms with neat example.	*11*	*K2*	*CO5*
28.	a)	Construct the Multiple regressions model with suitable example.	*11*	*K3*	*CO6*
		OR			
	b)	Build the Random Forest model with suitable example.	*11*	*K3*	*CO6*