PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MCA DEGREE EXAMINATION DECEMBER 2022
(Third Semester)

Branch – **COMPUTER APPLICATIONS**

R PROGRAMMING

Time: Three Hours Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 1 = 5)

1 Which of the following is not a basic data type in R?
(i) Numeric (ii) Character
(iii) Data frame (iv) Integer

2 Which of the following R code extracts the second column for the following matrix?
> x <- matrix(1:6, 2, 3)
(i) x[2,] (ii) x[1, 2] (iii) x[, 2] (iv) x[1 1 2]

3 To extract a sublist, we use _____ brackets.
(i) Flower (ii) Square (iii) Double (iv) Single

4 Data frames can be converted to a matrix by calling data _____.
(i) as.matr() (ii) as.mat() (iii) as.matrix() (iv) as.max()

5 Which of the following is used for reading tabular data?
(i) read.csv (ii) dget (iii) readLines (iv) writeline

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 a Write a R code segments to create vectors of objects by concatenating things together logical, character and complex types.

OR

b Mention the procedure to load a .csv file in R.

7 a What is the use of subset() function and sample() function in R ? Give suitable example.

OR

b What is Data Frame? Explain.

8 a From the below data-set, write a R program to extract only those values where Age>60 and Sex="F".

Age	Sex	Coverage	Cost
47	F	10	8.93
52	F	10	10.46
57	F	10	14.38
62	F	10	20.44
67	F	10	27.38
72	F	10	39.83
47	F	20	13.87
52	F	20	16.92
57	F	20	24.77

OR

b Write a R program to create three vectors a,b,c with 3 integers. Combine the three vectors to become a 3×3 matrix where each column represents a vector. Print the content of the matrix.

Cont...

9 a What is a Lazy Evaluation? Give an example.

OR

b Differentiate between lapply and sapply.

10 a Mention the functions that are used for debugging in R.

OR

b Define the ways of using graphics parameters.

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11 a Write a R program to read data from a large data file. How to write into a data file?

OR

b Write a R program to read a text file and display line by line. How to read through an URL connection?

12 a Describe some functions available in "dplyr" package with an example.

OR

b How to remove rows with value NA in R? Discuss.

13 a An Armstrong number is a number that is equal to the sum of the cubes of its own digits. For example, 370 is an Armstrong number since 370 = 3*3*3 + 7*7*7 + 0*0*0.
Write a program to find a given number is Armstrong or not.

OR

b Discuss the scoping rules of R in detail with appropriate examples.

14 a What is debugging? Enumerate the debugging tools in R with examples.

OR

b Discuss in detail the 'apply' family of functions in R with appropriate examples.

15 a Describe the high level and low level plotting commands in detail.

OR

b Mention the methods to interact with graphics, and the ways of using graphics parameter list. Discuss.

Z-Z-Z END