Code No: R1621051 **R16** SET - 1

II B. Tech I Semester Model Question Paper Sept - 2017
STATISTICS WITH R PROGRAMMING
(CSE)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART – A

[7 x 2 =14]

1. a) What are the different modes of working with R
   b) List the data structures in R.
   c) Write syntax of if else in R.
   d) Write any 3 math functions in R.
   e) Write the syntax of plot().
   f) Define mean, median, mode and standard deviation.
   g) What is correlation Analysis

PART – B

2. a) Explain Datatypes in R (7M)
   b) Write R code to tabulate a function $f(x)=3x^2+2x+1$ in the interval (-1,1) in steps of 0.2 (7M)
3. a) Write R code to return a complex object
   b) How to pass default values for arguments in R (7M)
4. a) The probability density function of a random variable is given by $f(x)=k(1-x^2)$ for $0<x<1$ 0 otherwise. find the value of k and the probabilities (7M)
   i) between 0.1 and 0.2 ii) greater than 0.5 (7M)
   b) Explain linear algebra operations on vectors and matrices (7M)
5. a) Write R code for Quick sort (7M)
   b) Compute the correlation coefficient for the following data (7M)

X	68	64	75	50	64	80	75	40	55	64
y	62	58	68	45	81	60	68	48	58	70

6. a) Write R program to create pie chart for the following data (7M)
   Housing -------600
   Food --------300
   Clothes ---------150
   Entertainment---100
   Others ---------200
   b) Calculate the coefficient of correlation to the following data (7M)

x	10	12	18	24	23	27
y	13	18	12	25	30	10

7. a) Fit a curve of the type $y=ae^{bx}$ to the following data (7M)

x	0	1	2	3
y	1.05	2.1	3.85	8.3

b) Explain function for reading and writing files (7M)

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Code No: R1621051 **R16** SET - 2

II B. Tech I Semester Model Question Paper Oct/Nov - 2017
STATISTICS WITH R PROGRAMMING
(CSE)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART – A

[7 x 2 =14]

1. a) List the differences between vector and list.
   b) Write syntax of for in R.
   c) Calculate the cummulative sum and cummulative product for the given data 23, 1, 7, -2, 8, 10, 17
   d) What is the use of legend() function.
   e) Define normal distribution
   f) What is survival analysis
   g) what is the use of par() function.

PART –B

2. a) Explain in detail about dataframe and arrays with example R code. (7M)
   b) Write R code to generate first n terms of a Fibonacci series (7M)

3. a) Explain the functioning of apply() sapply() in R program with one example each. (7M)
   b) A random sample of size 100 is taken from an infinite population having mean 76 and variance 256 .What is the probability that $\bar{x}$ will be between 75 and 78 (7M)

4. a) Fit a binomial distribution to the following data (7M)

X:	0	1	2	3	4	5	6
R:	5	18	28	12	7	6	4

   b) Explain control structures in R with example. (7M)

5. a) Write R program to plot the function f(x)= sin(x) in the interval (-3,3) in the steps of 0.1 the point character of the plot is to be triangle joined with the lines. (7M)
   b) A random sample of 100 teachers from a large metropolitan area revealed a mean weekly salary of Rs. 487 with a standard deviation of Rs. 48 . With what degree of confidence can we assert the average weekly salary of teachers is between 472 to 502. (7M)

6. a) Write R code to generate the probability distribution table for number of successes from a binomial distribution where n=5 and probability of success in each trial is 0.25 (7M)
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b) Given

Treatment	Fabric			
	1	**2**	**3**	**4**
1	17.6	19.6	18.4	19.8
2	19.2	20.4	19.8	20.7
3	17.2	19.0	17.1	17.3
4	17.0	20.1	17.1	17.7
5	17.4	18.8	17.8	16.5

Perform ANONA to test whether there is any significant difference between treatments and fabrics. (7M)

7. a) Fit a straight line to the following data (7M)

X	0	1	2	3	4
y	1	1.8	3.3	4.5	6.3

b) Explain R function for differentiation and integration with an example each. (7M)

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Code No:R1621051 **R16** SET - 3

II B. Tech I Semester Model Question Paper Sept - **2017**
STATISTICS WITH R PROGRAMMING
(CSE)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART – A

[7 x 2 =14]

1. a) Create a 3-dimensional array in R.
   b) Write syntax of while in R.
   c) Find the minimum and maximum for 14, 23, 16, 20, 0, -17, 100.
   d) Write R script to create a linegraph.
   e) Define binomail distribution.
   f) Write applications of R programming.
   g) What is a T-test?

PART -B

2. a) Explain list data structure and its operation with example. (7M)
   b) Write R code to find the factorial of a number(use recursion). (7M)

3. a) Write R code to implement Binary Search Tree. (7M)
   b) Explain set operations in R with examples. (7M)

4. a) Fit a poisson distribution with the following data (7M)

X	0	1	2	3	4	5
F	142	156	69	27	5	1

   b) Explain in detail about math functions in R with an example each. (7M)

5. a) The maximum temperature in celcius in a week is given as (35,42,38,25,28,36,40). (7M)
   Draw the bar plot for the given data. Also use legend function to describe hists.
   b) Explain the differences between stacked bar plot and bar plot. (7M)

6. a) Calculate karl pearson's correlation coefficient for the following data. (7M)

X	38	45	46	38	35	38	46	32	36	38
Y	28	34	38	34	36	26	28	29	25	36

   b) Explain functions for accessing the keyboard and monitor. (7M)

7. a) Fit a parabola to the following data (7M)

X	1	2	3	4	5
Y	10	12	8	10	14

   b) Heights(in cm) of father and son are given as follows (7M)

Father(X)	150	152	155	157	160	161	164	165
Son(Y)	154	156	158	159	160	162	161	164

Fit a regression line predict the height of son given the height of father.
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Code No: R1621051 **R16** SET - 4

II B. Tech I Semester Model Question Paper Oct/Nov - 2017
STATISTICS WITH R PROGRAMMING
(CSE)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART – A

[7 x 2 =14]

1. a) Create a simple matrix with 3X3 size in R.
   b) Write syntax of repeat in R.
   c) Find the factorial of 6. Find the mean, median, standard deviation of 2,4,9,10,14,28,52.
   d) Find the inverse of a matrix of any 3X2 matrix.
   e) Write the differences between histogram and bar graph.
   f) What is anova test?
   g) Explain dnorm() function

PART -B

2. a) What is a vector in R? Explain operations on vectors. (7M)
   b) Write R function to check whether the given number is prime or not (7M)

3. a) Explain the functioning of lapply() and tapply() in a R program with one example. (7M)
   b) Write R code to the function by using if else command

$$f(x) = x \quad \text{if } x<1/2$$
$$= (1-x) \quad \text{if } 1/2<x<1$$
$$= 0 \quad \text{otherwise}$$

(7M)

4. a) Given 3 linear equations $5x1-x2+3x3=7$
   $3x1+2x2+4x3=10$
   $7x1-4x2+8x3=-14$ Solve the linear equations and find x1,x2,x3 values using appropriate R function.
   b) For the discrete probability distribution Find k, mean, variance.

X	0	1	2	3	4	5	6
F	0	2K	2K	3K	K^2	$2K^2$	$7K^2+K$

(7M)

5. a) Write R program to plot the function f(x)= sin(x) in the interval (-3,3) in steps of 0.1. The point character of the plot 1's to be triangle joined with the lines. (7M)
   b) Write R code to generate the probability distribution table for number of successes from a binomial distribution where n=5 and probability of success in each trial is 0.25.

6. a) Calculate the coefficient of correlation to the following data

(7M)

X	10	12	18	24	23	27
Y	13	18	12	25	30	10
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b) Assume there are twenty multiple choice questions in a class quiz. Each question has four possible answers and only one of them is correct. Find the probability of having six or less correct answers if a student attempts to answer every question at random using appropriate R function. (7M)

7. a) Fit a polynomial of degree 2 to the following data (7M)

X	0	1	2
Y	1	6	17

b) Heights(in cm) of father and son are given as follows

Fit a regression line predict the height of son given the height of father. (7M)

Father(X)	150	152	155	157	160	161	164	165
Son(Y)	154	156	158	159	160	162	161	164