

Fit a linear regression line $y = \alpha + \beta x$ for the given data (x, y) Estimate y and residual vector

Create a data frame to store vectors x, estimated y, and residual.

Predict y for a vector x of two elements.

Also plot the regression line y on x and the given data (x, y) on the same plot.

7. Explain the significance of functions qqline(). (15)

Write R-Code for the simulation of random sample of size 10 (one each from uniform (0,1) and exp (2) distribution). In each case, draw boxplot and QQ plot to judge whether the parent population is normal. To draw the above QQ plots, use both high level plot and low level plot functions.

8. For a given raw data, obtain the grouped frequency data with 6 class intervals. Also obtain the mid value for each class and the cumulative frequencies. (15)
9. Given the frequency distribution $x_i | f_i$, having equal class intervals, draw less than and more than ogives in a single plot and also find the median. Also draw another plot for a histogram. (15)

(100)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 4869

J

Unique Paper Code : 2374002005

Name of the Paper : GE: Statistical Computation
Using R

Name of the Course : **B.Sc. (Hons.)**

Semester : IV

Duration : 3 Hours____

Maximum Marks : 90

Instructions for Candidates

1. Write your Roll. No. on the top immediately on receipt of this question paper.
2. Attempt **seven** questions in all, selecting one from **Section A**, two questions from **Section B** and 4 questions from **Section C**.
3. Write R codes for each question given in all sections along with other question related answers.

P.T.O.

Section A

1. (a) Write the arguments used in graphical representation of R for the line type and line width. (2)
- (b) Write a command to customized y-axis limits in a graphical representation? Give example. (2)
- (c) For a given vector, write R code to draw a pie chart with the initial angle 80 degrees. (2)
- (d) How can you import data from an Excel file into R? What file format should the Excel sheet be saved in? (2)
- (e) Write R codes to obtain $P(X \leq 3)$, where $X \sim \text{Poisson}(0.02)$ (2)

Section B

2. Write a R-code to fit a Poisson distribution for given $x_i|f_i$, ($i = 1, 2, \dots, 10$) and also apply the goodness of fit test. (10)
3. Write a R-code for simulating the effect of increasing the values of parameter λ from 1 to 11 with step 2 in a Poisson distribution. (10)

4. Give the description of r, d, p, q functions for uniform probability distribution functions.

Population of height for adult male of some group follows normal distribution with mean 70.4 inches and the s.d. is 2.04 inches. Write R-codes to find the adult males taller than 6 ft. (10)

Section C

5. Write a R-code for the following (15)
 - (i) Draw a SRSWOR of size 20 from the population data frame Y of 100 students. Data frame has 5 fields viz. Name, RollNo, marks in Maths, marks in Statistics and Total Marks.
 - (ii) Calculate sample mean, variance and population mean and variance of a field Total Marks.
 - (iii) Obtain correlation coefficient between Marks in Maths and marks in Statistics.
 - (iv) Which library is required to be installed for above function.
6. Write a R-code for the following (15)