

Unique Paper Code: 32373902_OC

Name of the Paper: Statistical Data Analysis Using R (SEE-2)

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

Semester: III

Duration: 2 hours

Max Marks: 50

Instructions for candidates

Attempt any FOUR questions. Write R codes for each question given in Section B along with other question related answers.

Section A

- Q1(a) For a given vector $x = c(3, 8, 2, 5, 4, 7, 9, 5)$, the values obtained by using `cummax(x)` are _____ . 1
- (b) A command used to extract 5th and 6th element from a vector x of 9 elements is _____. 1
- (c) A command/R code `abline(v = value)` is used for drawing _____ line. 1
- (d) CRAN in R stands for Comprehensive R _____. 1
- (e) In R missing values are represented by _____ which should be in capital letters. 1
- (f) Write R codes to obtain $P(X \leq 2)$, where $X \sim \text{Binomial}(n = 20, \text{prob.} = 0.5)$. $1\frac{1}{2}$
- (g) Can we use customized x-axis limits in a graphical representation? Give example. $1\frac{1}{2}$
- (h) If x is a vector of length n , write R commands to calculate $\frac{1}{n} \sum_{i=1}^n |x_i - \bar{x}|$ $1\frac{1}{2}$
- (i) Write the output of the following R Codes:
`X <- seq(0,90,20)`
`X` $1\frac{1}{2}$
write a R-code to
- (j) Write the use of summary and table function used in R. $1\frac{1}{2}$

Section B

- Q2 Given the frequency distribution $x_i | f_i$, having equal class intervals, draw less than and more than ogives using `cumsum` function in a single plot and also find the median. $12\frac{1}{2}$

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Q3	Write R-Code for Paired t-test. Also interpret the results as obtained in R. Write R codes for mean, variance, median and mode for both the samples used in the above t-test.	12 $\frac{1}{2}$	Formatted: Font: (Default) Times New Roman, 12 pt, Complex Script Font: Times New Roman, 12 pt
Q4	Write a R- code for revealing the effect of increasing the value of parameter in a Binomial distribution.	12 $\frac{1}{2}$	Formatted: Font: (Default) Times New Roman, 12 pt, Complex Script Font: Times New Roman, 12 pt
Q5	Write R-Code to 1) construct boxplot and qq plot to check the normality of the parent population. 2) if the parent population is normal then construct 90% confidence interval for the population mean.	12 $\frac{1}{2}$	Formatted: Font: (Default) Times New Roman, 12 pt, Complex Script Font: Times New Roman, 12 pt
Q6	Write a R- code for the following (i) Draw a SRSWOR of size 10 from the population vector Y of 100 students. (ii) Calculate sample mean, variance and population mean and variance of a field Marks. (iii) Which library is required to be installed for above function.	12 $\frac{1}{2}$	Formatted: Font: (Default) Times New Roman, 12 pt, Complex Script Font: Times New Roman, 12 pt
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