H Roll No. .....

TMC–105

M. C. A. (H) (FIRST SEMESTER)

END SEMESTER

EXAMINATION, Jan., 2023

STATISTICAL DATA ANALYTICS WITH R

Time : 3 Hours

Maximum Marks : 100

Note : (i) All questions are compulsory.

(ii) Answer any *two* of the sub-questions among *a*, *b* and *c* in each main question.

(iii) Total marks in each main question are twenty.

(iv) Each question carries 10 marks.

1. (a) Given that $n = 25$, $\Sigma X = 125$, $\Sigma Y = 100$, $\Sigma XY = 520$, $\Sigma X^2 = 650$, $\Sigma Y^2 = 436$. Obtain the value of correlation coefficient. (CO1)

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OR

(b) Briefly discuss the methods of collecting statistical data. (CO1)

OR

(c) Following are the runs scored by two batsmen in 5 cricket matches. Who is more consistent is scoring runs ? (CO2)

Batsman A	Batsman B
38	37
47	35
34	41
18	27
33	35

2. (a) (i) 100 students appeared for two examinations. 60 passed the first, 50 passed the second and 30 passed both. Find the probability that a student selected at random has failed in both the examinations. (CO2)

(ii) A bag contains 25 balls, numbered from 1 to 25, one is to be drawn at random. Find the probability that the number of the drawn ball will be a multiple of 5 or 7. (CO2)

OR

(b) Discuss the Bays' theorem with example. (CO3)

OR

(c) Briefly explain three types of graphical representation with example. (CO3)

3. (a) Differentiate between the Z test and T test and explain the methods. (CO3)

OR

(b) Discuss type I and type II errors in Hypothesis briefly. (CO5)

OR

(c) Obtain both the regression lines from the following data : (CO2)

X	Y
1	15
3	18
5	21
7	23
9	22

4. (a) Make a factorial function by using the R concept. (CO4)

OR

(b) Discuss at least 5 inbuilt packages in R with their uses and example. (CO5)

OR

(c) The following table gives the yields on 12 sample plots under three varieties of seed A, B and C. Set up a table of analysis of variance and find out whether there is a significant difference between the mean yields of three varieties. (CO5)

A	B	C
10	9	4
6	7	8
7	7	6
9	5	6

5. (a) What are the different data structures in R ? Briefly explain about them. (CO5)

OR

(b) Give examples of "rbind( )" and "cbind()" functions in R. (CO4)

OR

(c) Write a code to import excel file as CSV and find the Z test and T test for one of the numeric fields. (CO4)