

RAN-2411001003040001
S.Y.B.Sc. (Comp. Sci.) (Sem.-III) Examination March - 2026
Statistical Methods and Data Analysis (CS-MDC-302)
Time: 2 Hours]
[Total Marks: 50
સૂચના : / Instructions

- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book

Seat No.:

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Student's Signature
Q.1. A. Choose correct option (any 5 out of 7)
05

- If a card is drawn from a pack of 52 cards then what is the probability of getting black face card?
 - $\frac{1}{2}$
 - $\frac{1}{4}$
 - $\frac{3}{26}$
 - $\frac{3}{13}$
- Which package is needed to import Excel files into R?
 - ggplot2
 - readxl
 - dplyr
 - xlsxReader
- If the variance of a data set is 16, what is the standard deviation?
 - 4
 - 8
 - 16
 - 4
- Which of the following syntax is used for selecting 4th row and 3rd column element?
 - mat[2,3]
 - mat[4,3]
 - mat[3,4]
 - mat[3,2]
- Which function is used to write a data frame into a CSV file?
 - save.csv()
 - write.csv()
 - store.csv()
 - write.dataframe()
- What function is used to calculate the median in R?
 - median()
 - avg()
 - quar()
 - 2nd quar()
- The range of the dataset 5, 10, 15, 20, and 25 is:
 - 20
 - 5
 - 25
 - 15

B. Answer the following (5 out of 7)
05

- Write the relation between mean, median and mode.
- How can you access a specific column of a data frame?
- Write mode formula for continuous data set.
- In normal distribution how mean, median and mode related to each other?
- In probability theory, what does "P(A)" represent?
- What is the result of the median() function if the number of elements in a dataset is even?
- What does the 'class()' function do in R?

Q.2. A. 1. Find mean for following data **05**

Class	50-59	40-49	30-39	20-29	10-19	0-9
F	1	3	8	10	15	3

2. Assuming that boys and girls are equally probable find the number of families out of 1600 families each having 5 children, with (i) 3 boys (ii) 5 girls (iii) 2 or 3 boys (iv) all children of the same gender. **05**

OR

Q.2. A. 1. Find median for following data **05**

Class	70-80	80-90	90-100	100-110	110-120	120-130	130-140	140-150
F	12	18	35	42	50	45	20	8

2. For a group of 200 candidates the mean and the SD was found to be 40 and 15 respectively. Later on it was found that the score 43 was misread as 34. Find correct mean and SD. **05**

Q.2. B 1. If mean mark of 10 students is 30 out of 50. Later on it found that every student will get 2 extra marks then what is the new mean? **03**

2. Find range and coefficient of range of 70, 61, 73, 67, 64, 75, 63, 60 **03**

OR

Q.2. B. 1. For binomial distribution with $n = 6$, $9 P(x = 4) = P(x = 2)$, find the value of P. **03**

2. In a normal distribution mean $\mu = 21.5$ and $\sigma = 2.5$ then find the value of $P\{x \leq 25\}$ **03**

Q.3. A. 1. Write R code to read records from the csv file exists in a folder in your desktop and display the records one by one. **05**

2. How to Add, Remove, and Rename Variables and Attributes in R? **05**

OR

Q.3. A. 1. Explain Basic commands of R. **05**

2. What is Missing Data? How to Identify and Handle Missing Data Using R? **05**

Q.3. B. 1. Give any two purpose of Cleaning and Transforming Data in R? **03**

2. List data types in R programming language with example. **03**

OR

Q.3. B. 1. How can we use select() function for sub setting in R? **03**

2. Explain Which()Function? Give an example. **03**

Q.4. A. How do you perform different types of joins (e.g., natural join, left join, right join) in R using the merge() function? **05**

OR

A. Discuss the difference between combining vectors using cbind() and combining data frames using rbind() in R. **05**

Q.4. B. What is the purpose of merging data frames in R? **03**

OR

B. Explain the process of reordering rows in a data frame using the arrange() functions in R. **03**
