

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS) SECOND SEMESTER EXAMINATION (2024 ADMISSION ONWARDS)

MG2MDCSTA101 - Data Analysis using JAMOVİ and Introduction to R

Duration: 1Hour

Maximum: 35 Marks

PRACTICAL EXAMINATION

From the following **eight** questions, students must answer any **five** questions.
Each question carries **seven** marks.

Solve the questions using JAMOVİ and R in computer lab. The data in the question along with their answer must be written in the answer paper.

1. The following data gives the weights in kgs of 20 college students recorded correct to the first decimal place. Obtain various descriptive measures using JAMOVİ

40.2 26.3 43.6 56.6 46.2 48.3 49.7 28.3 35.4 40.3 38.4 39.6 42.6
50.0 48.3 58.2 57.2 58.3 62.4 31.4 [A][2]

2. The monthly sales of items in a shop is as follows. Draw a simple bar plot in JAMOVİ for the given data of monthly sales of items in the shop.

Month	Jan	Feb	Mar	Apr	May	June	Jul
Sales	1700	2000	2500	1200	3000	1000	1300

[A][1]

3. From following information shows the advertisement expenses and sales volume of 10 firms in India.

Firm	1	2	3	4	5	6	7	8	9	10
Advertisement expenses(Rs.in lakhs)	11	13	14	16	16	15	15	14	13	13
Sales Volume (Rs.in lakhs)	50	50	55	60	65	67	66	60	61	57

Using JAMOV

(a) Construct a scatter plot to study the relationship between advertisement expenditure and sales volume and the nature of correlation.

(b) Calculate Pearson's correlation coefficient between the variables and comment on the result. [An][3]

4. A research study was conducted to examine the differences between older and younger adults on perceived life satisfaction. Ten older adults (over the age of 70) and ten younger adults (between 20 and 30) were given a life satisfaction test. Scores on the measure range from 0 to 60 with high scores indicative of high life satisfaction; low scores indicative of low life satisfaction. The data are presented below. Using JAMOV, test whether the average score of life satisfaction of the two groups are the same?

Older Adults	45	38	52	48	25	39	51	46	55	46
Younger Adults	34	22	15	27	37	41	24	19	26	36

[An][3]

5. Manures M1, M2, M3, M4 and M5 are applied to 4 plots each in 20 identical plots in which the same variety of wheat was cultivated. The following table gives the yields per plot in quintals. Use Analysis of Variance, test whether the manures have significantly different effects at 5% level of significance in JAMOV

M1	6	8	4	2
M2	7	5	5	3
M3	4	7	3	2
M4	8	4	6	7
M5	2	5	4	4

[An][3]

6. A company has to choose among three pensions plans. The company wishes to test the hypothesis ‘preference for plans is independent of job classification’. It asks the opinion of a sample of 600 employees and obtained the information presented below. Use chi-square, test the hypothesis which the company wishes to do at 5% level of significance in JAMOVl.

	No. of employees favouring			
Job Classification		Plan A	Plan B	Plan C
	Factory Employees	72	10	10
	Clerical Employees	70	20	10
	Supervisors	160	30	10
	Executives	148	40	20

[An][3]

7. The following data on the marks of 30 students is stored in a data vector named data: Using basic R programming, find the arithmetic mean, median and range of the marks of these 30 students. [A][4]

31, 31, 36, 33, 36, 37, 36, 35, 30, 35, 36, 33, 30, 36, 33, 37, 34, 30, 37, 35, 37, 31, 34, 35, 31, 37, 36, 34, 31, 34.

8. Suppose we have four vectors: $x = (2, 1, 3, 7)$, $y = (4, 2, 3, 5)$, $z = (10, 20)$ and $w = (15)$. Write the R script for creating following data frames. Also write the output you obtained. [A][4]

- a) (x, z)
- b) (x, w)
- c) (x, y)