

Lab no. 16(Median Test)

The marks obtained by 2 groups of students is given below:

Group a	44	46	60	50	66	52	35	62	
Group b	50	53	40	51	62	63	54	48	

At 5% level of significance test whether there is significant difference between marks of two groups of student use median test

Hypothesis:

H₀: $md_1 = md_2$ i.e. there is no significant difference between marks of two group of students.

H₁: $md_1 \neq md_2$ i.e. there is significant difference between marks of two group of students.

Alpha = 5%

Test statistics:

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The medians of marks are the same across categories of group.	Independent-Samples Median Test	1.000 ²	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

²Fisher Exact Sig.

Decision

Hence we accept h₀.

i.e. There is no significant difference between marks of two group of students.

lab no. 17

The following data represents output of two different treatments.

Treatment 1	Treatment 2
46	56
65	40
48	52
55	61
70	72
47	64

At alpha =5%, test whether output of two different treatment are similar. Use median test.

Hypothesis:

H0: Md1=Md2 i.e. the output of two treatments are similar.

H1: Md1≠Md2 i.e. the output of two treatments aren't similar.

Alpha = 5%

Test statistics:

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The medians of output are the same across categories of treatment.	Independent-Samples Median Test	.567 ^{1,2}	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

¹Exact significance is displayed for this test.

²Fisher Exact Sig.

Decision

Here we accept h0, We conclude that the output of two treatments are similar.

Lab no 18

The following table represents the operating time of 3 different brands of scientific calculator.

A	B	C
4.8	3.8	3.9
5.9	4.0	5.0
6.4	5.9	6.2
5.0	6.1	5.2
4.4	4.7	5.7
	7.0	

At 5% level of significance test whether there is significance difference between operating time of 3 different brands of calculator using kruskal wallis H test.

Hypothesis:

H₀: There is no significance difference between operating time of 3 brands.

H₁: There is significance difference between operating time of 3 brands.

Alpha = 5%

Test statistics:

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of operating_time is the same across categories of calculator.	Independent-Samples Kruskal-Wallis Test	.982	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Decision

Hence we conclude that There is no significance difference between operating time of 3 brands.

Lab no 19

In an experiment to determine which of 3 different missile system is preferable, the propellant burning rate is measured. The data after coding are given in the table. Use Kruskal wallis test significance level of 0.01 to test the hypothesis that the propellant burning rates are same for the three missiles system.

Missile system A	Missile system B	Missile system c
22.3	23.4	18.4
16.7	19.5	19.5
22.7	17.5	17.8
19.3	20.8	18.0
18.5	16.0	19.6
	19.9	22.8
		17.1

Hypothesis:

H0: the propellant burning rates are same for the three missiles system.

H1: the propellant burning rates aren't same for the three missiles system.

Alpha =5%

Test statistics:

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of rate is the same across categories of missile.	Independent-Samples Kruskal-Wallis Test	.862	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Decision:

Here we accept h0 i.e. the propellant burning rates are same for the three missiles system.