

Hypothesis Test for the SRCC

Solutions

1.

H_0	The amount of rainfall and hours of sunshine in October are independent from each other
H_1	There is a negative association between the amount of rainfall and hours of sunshine in October

1	tailed
---	--------

5	% significance level
---	----------------------

Test Statistic	-0.7983
----------------	---------

Critical Value	-0.6000
----------------	---------

Test Statistic		<	Critical Value
Hence, we		REJECT	H_0
Therefore, there is	Significant evidence to suggest that days with higher rainfall tend to have fewer hours of sunshine.		

2.

- a. As we do not know the weekly takings, we have only been given the rankings of this
b.

H_0	The % of part time staff and the rank of the weekly takings are independent of each other									
H_1	The % of part time staff and the rank of the weekly takings are not independent of each other									
2	tailed									
5	% significance level									
Test Statistic	-0.4435									
Critical Value	± 0.6833									
<table><tr><td>Test Statistic</td><td>></td><td>Critical Value</td></tr><tr><td>Hence, we</td><td>Accept</td><td>H_0</td></tr><tr><td>Therefore, there is</td><td colspan="2">Significant evidence to suggest that there is no relationship between the percentage of part time staff employed and the weekly takings</td></tr></table>		Test Statistic	>	Critical Value	Hence, we	Accept	H_0	Therefore, there is	Significant evidence to suggest that there is no relationship between the percentage of part time staff employed and the weekly takings	
Test Statistic	>	Critical Value								
Hence, we	Accept	H_0								
Therefore, there is	Significant evidence to suggest that there is no relationship between the percentage of part time staff employed and the weekly takings									

2.

- a. As the data has already been ranked by the judges
- b.

H_0	The Judges opinions are independent of each other						
H_1	There is an inverse association between the opinions of the two judges						
1	Tailed						
5	% significance level						
Test Statistic	- 0.4000						
Critical Value	± 0.9000						
<table><tr><td>Test Statistic</td><td>></td><td>Critical Value</td></tr><tr><td>Hence, we</td><td>ACCEPT</td><td>H_0</td></tr></table>		Test Statistic	>	Critical Value	Hence, we	ACCEPT	H_0
Test Statistic	>	Critical Value					
Hence, we	ACCEPT	H_0					
Therefore, there is	No significant evidence to suggest an inverse association between the opinions of the two judges						

2.

- a. SRCC as the data for the Poems is a rank not raw data
b.

H_0	The reading age of a students and the ability to write a poem are independent of each other
H_1	The reading age of a students and the ability to write a poem are not independent of each other

2	tailed
---	--------

1	% significance level
---	----------------------

Test Statistic	- 0.5952
----------------	----------

Critical Value	± 0.8571
----------------	--------------

Test Statistic		>	Critical Value	
Hence, we		ACCEPT		H_0
Therefore, there is		No significant evidence to suggest there is an association between the reading age of a student and their ability to write poetry		