# Q.NO.1

# Working Expression:

Sample mean−Population mean



t=

𝑆𝑡𝑎𝑛𝑑𝑎𝑟𝑑 𝑒𝑟𝑟𝑜𝑟

# Working Procedure:

Define variables download speed variable’s view → Type, numeric → Label, Download Speed → measure, scale → input data in data view →Analysis → compare means → one sample t-test

→put in test variables →options, 95% → continue → test value=100 → ok

# SPSS OUTPUT:

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| --- | --- | --- | --- | --- | --- | --- |
| **One-Sample Test** | | | | | | |
|  | Test Value = 100 | | | | | |
| t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
| Lower | Upper |
| Download Speed | -1.592 | 22 | .126 | -3.565 | -8.21 | 1.08 |

**Setting of Hypothesis:**

H0: The Population mean is equal to 100 Mbps.

H1: The Population mean is not equal to 100 Mbps. (Two tailed test)

# Level of significance

α= 0.05

Decision:

Here p-value (two tailed) (2p) = 0.126

Since p=0.126>α =0.05, we accept H0 and H1 is rejected.

# Conclusion:

Hence, we conclude that the Population mean is equal to 100 Mbps.

# Q.no.2

# Working Expression:

The regression line of Y on X1 and X2 is Y = a + b1x1 + b2x2

Where, Y= dependent variable A = y-intercept

B1 and b2 are regression coefficients X1 and x2 are independent variable

# Working Procedure:

Define variables Y, X1, X2 in variable view -> Put data in variable view ->Put measure as scale-> Analyze -> Regression -> Linear -> Put Y in dependent list -> Put X1 and X2 in independent list -> Goto statistics -> Level of confidence interval 95% -> continue -> ok

# SPSS OUTPUT:

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| --- | --- | --- | --- | --- |
| **Model Summary** | | | | |
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .939a | .881 | .834 | .999 |
| a. Predictors: (Constant), X2, X1 | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Coefficientsa** | | | | | | | | |
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
| B | Std. Error | Beta | Lower Bound | Upper Bound |
| 1 | (Constant) | -4.192 | 1.888 |  | -2.220 | .077 | -9.045 | .662 |
| X1 | .105 | .032 | .501 | 3.247 | .023 | .022 | .188 |
| X2 | .807 | .158 | .786 | 5.097 | .004 | .400 | 1.213 |
| a. Dependent Variable: Y | | | | | | | | |

# Calculation:

Here, a = -4.192

b1 = 0.105

b2 = 0.807

The multiple models are

Y = a + b1x1 + b2x2

= -4.192+0.105x1+0.807x2

b) When x1 =48, x2 = 9, Y=?

Y = -4.192+0.105\*48+0.807\*9

= 8.111

c) Multiple determination (R) = 0.158

= 15.8%

Which means that 15.8% of variation of dependent variable Y is explained by two independent variables X1 and X2.

c-ii) Standard error of estimation is 0.999

Conclusion:

In general, in this way we can obtain the estimated value, coefficient of determination and

standard error from the given data.

**Q. No. 3:**

## Working Expression:

**t =** 𝐦𝐞𝐚𝐧 𝐨𝐟 𝐟𝐢𝐫𝐬𝐭 𝐬𝐚𝐦𝐩𝐥𝐞 – 𝐦𝐞𝐚𝐧 𝐨𝐟 𝐬𝐞𝐜𝐨𝐧𝐝 𝐬𝐚𝐦𝐩𝐥𝐞

𝐬𝐭𝐚𝐧𝐝𝐚𝐫𝐝 𝐞𝐫𝐫𝐨𝐫

## Working Procedure:

Define variables company A, company B and value in variable view →label them as company and value→ assign type as numeric for company A and company B →assign measure as scale→ go to analyze → compare means → independent sample t –test → put values of company in test variables and values in grouping variable → go to options give level of confidence 95% → continue → ok

## SPSS OUTPUT:

**Independent Samples Test**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
| F | Sig. | t | df | Sig. (2-  tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the  Difference | |
| Lower | Upper |
| values of company | Equal variances assumed | 3.361 | .097 | .735 | 10 | .479 | 1.000 | 1.361 | -2.032 | 4.032 |
| Equal variances  not assumed | .804 | 9.759 | .441 | 1.000 | 1.244 | -1.781 | 3.781 |

## Setting of Hypothesis:

Ho: There is no significant difference between the durability of RAM.

H1: There is significant difference between the durability of RAM. (two tailed test).

## Level of significance

α = 0.05

Decision:

For Levene’s test for equality of variances, p- value = 0.097> α = 0.05, we accept Ho Hence, equal variances assumed.

Since 2p = 0.479 > α = 0.05, we accept Ho.

## Conclusion:

Hence, we conclude that there is no significant difference between the durability of RA