Statistics worksheet-1

ANS.NO.1= (D)

ANS.NO.2= (B)

ANS.NO.3= (D)

ANS.NO.4= (B)

ANS.NO.5=(C)

ANS.NO.6= (D)

ANS.NO.7= (B)

ANS.NO.8= (A)

ANS.NO.9= (D)

ANS.NO.10= (C)

ANS.NO.11= (A)

ANS.NO.12= (A)

SUBJECTIVE ANS.

ANS.NO.13:

Anova in SPSS is used for examining the differences in the mean value of dependent variable associated with the effect of the controlled independent variables, after taking into account the influence of the uncontrolled independent variables. ANOVA In SPSS is used as the test of means for two or more populations.

ANOVA in SSS must have a dependent variables which should be matric .ANOVA in SPSS must also have one

or more independent variables, which should be categorical in nature. In ANOVA in SPSS, categorical independent variables are called factors .A particular combination of factor level, or categorical is called treatment.

If two or more factors are involved in ANOVA in SPSS, then it is termed as n way ANOVA.

For example, if the researcher also wants to examine the preference for total cereal by the customers who are loyal to it and those who are not, then we can use n way ANOVA in SPSS, from the menu we choose.

“Analyze” then go to “Compare Means” and click on the way ANOVA.

The first step is to identify the dependent and independent variables.

The dependent variable is generally denoted by Y.

The independent variable is generally denoted by X.

X is a categorical variable having c categories.

The sample size in each category of X is generally denoted as ‘n’ and the total sample size N= nXc.

1) The next step in ANOVA in SPSS is to examine the differences among means. This involves decomposition of the total variation observed in the dependent variables .this variation in ANOVA in

SPSS is measured by the sums of the squares of the mean.

2) The total variation in Y in ANOVA in SPSS is denoted by SSy, which can be decomposed into two components.
3) SSy= SSbetween +SSwith
4) Where the subscripts between and within refers to the categories of X in ANOVA in SPSS .
5) SSbetween is the portion of the sum squares in Y related to the independent variable or factor X.
6) Thus is generally referred to as the sum of squares of X.
7) SSwithin is the variation in Y related to the variation with in each category of X. it is generally referred to as the sum of squares for error in ANOVA in SPSS.
8) A final step in ANOVA in SPSS is to calculate the mean square which is obtained by dividing the sum of squares by the cross ponding degrees of freedom. The null hypothesis of equal means ,which is done by an F statistics, is the ratio between the mean square related to the independent variable and the mean square related to the error.

QUESTION NO.14

ANS.14

So many of our inference procedures, ANOVA has some underlying assumption which should be in place in order to make the results of calculation completely trustworthy.

1) Subject are chosen via simple random sample.
2) Within each group population the response variable is normally distributed.
3) While the population means may be different from one group to the next, the population standard deviation is the same for all groups.
4) ANOVA is somewhat robust.
5) At the normal quantile plots for each group and, in each case ,see that the data points fall close to a line.
6) Compute the standard deviations for each group sample, and see that the ratio of the largest to the smallest group sample is no more than two.

Question no.15

ANS.NO.15

Difference between one way ANOVA AND two way ANOVA…..

ONE WAY ANOVA:-

1) A one way ANOVA is a type of statistical test that compares the variance in the group means with in a sample whilst considering only one independent variable or factor.
2) A hypothesis based test.
3) Its aims to evaluate multiple mutually exclusive theories about our data.
4) Generate a hypothesis.
5) The null hypothesis (HO) is that there is no difference between the groups and equality between means.
6) The alternative hypothesis (H1) is that there is a difference between the means and the group.

TWO WAY ANOVA.

1) A two way ANOVA is like a one way ANOVA.
2) A hypothesis based test.
3) In the two way ANOVA each sample is defined in two ways. And resultingly put into two categorical groups.
4) The two way ANOVA therefore examine the effect of two factors on a dependent variable in this case weight and also examine whether the two factors affect each other to influence the continuous variable.
5) The two way ANOVA consider the effect of two categorical factors, and the effect of the categorical factors on each other, there are three pairs of null or alternative hypothesis for the two-way ANOVA. Here,

we present them for our walrus experiment where month of mating season and two independent variables.