

91. Pick out the notation for sample mean and population mean

- a) $\bar{x}$ and s
- b) $\bar{x}$ and μ
- c) $\bar{x}$ and s^2
- d) N and S

92. If the calculated value of t exceeds the tabulated value of at 5% or 1% level of significance the null hypothesis is

- a) Accepted
- b) Rejected
- c) None

93. Right tailed alternative is

- a) $H_1 : \mu > \mu_0$
- b) $H_1 : \mu_0 > \mu$
- c) $H_1 : \mu = \mu_0$
- d) $H_1 : \mu \neq \mu_0$

94. Left tailed alternative is

- a) $H_1 : \mu > \mu_0$
- b) $H_1 : \mu_0 > \mu$
- c) $H_1 : \mu = \mu_0$
- d) $H_1 : \mu \neq \mu_0$

95. *If $|Z| < z_\alpha$ then*

- a) Accepted
- b) Rejected
- c) Neither accepted nor rejected
- d) None

96. *If $|Z| > z_\alpha$ then*

- a) Accepted
- b) Rejected
- c) Neither accepted nor rejected
- d) None

97. Critical value depends on

- a) Level of significance
- b) Alternative hypothesis
- c) Both
- d) None

98. In all probability a standard normal variate to lie between

- a) -2 and 2
- b) -4 and 4
- c) -5 and 5
- d) -3 and 3

99. A coin is tossed 144 times and a person gets 80 heads. Can we say that the coin is unbiased one?

- a) Biased
- b) Unbiased
- c) none

100. When the size of the sample n _____ 30, then that sample is called a small sample.

- a) greater than
- b) greater than or equal to
- c) less than
- d) less than or equal to

101. When the size of the sample n _____ 30, then that sample is called a large sample.

- a) greater than
- b) greater than or equal to
- c) less than
- d) less than or equal to

102. If the calculated value of t is less than the tabulated value of at 5% or 1% level of significance the null hypothesis is

- a) Accepted
- b) Rejected
- c) None

103. If the standard deviation of a sample is given directly the statistic is given by

$$t = \frac{\bar{x} - \mu}{\frac{s^2}{\sqrt{n}}}$$

a)

$$t = \frac{\bar{x} - \mu}{\frac{s^2}{\sqrt{n-1}}}$$

b)

$$t = \frac{\bar{x} - \mu}{\frac{S.D}{\sqrt{n-1}}}$$

c)

104. Pick the degrees of freedom of student's t- test for single mean

- a) n-1
- b) n-m-1
- c) n-2
- d) n-m-2

105. write the formula for to test the significant difference between two means x and y of two sample sizes

$$t = \frac{x - y}{s \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

a)

$$t = \frac{x - y}{\sqrt{s^2 \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

b)

c) both a and b

d) none

106. Pick the degrees of freedom of student's t' test for difference of means

- a) $n_1 + n_2 - 1$
- b) $n_1 + n_2 + 2$
- c) $n_1 + n_2 - 2$
- d) $n_1 + n_2 + 1$

107. To if the two samples have come from the same population then we use

- a) t-test
- b) f-test
- c) chi-square test
- d) none

108. We will take greater of the variances S_1^2 or S_2^2

$$F = \frac{\text{Smaller variance}}{\text{Greater variance}}$$

a)

$$F = \frac{\text{Greater variance}}{\text{Smaller variance}}$$

b)

109. In F-test

- a) $S_1^2 \leq S_2^2$
- b) $S_1^2 > S_2^2$

c) $S_1^2 \geq S_2^2$

110. Pick the degrees of freedom for chi-square test of goodness of fit

- a) $n+1$
- b) $n+m+1$
- c) $n-1$
- d) $n-m-1$

111. The number of automobile accidents per week in a certain community are as follows: 12, 8, 20, 2, 14, 10, 15, 6, 9, 4. What is the expected frequency?

- a) 20
- b) 30
- c) 40
- d) 10

112. Observed frequencies are 1026, 1107, 997, 966, 1075, 933, 1107, 972, 964, 853. What is the expected frequency?

- a) 10
- b) 100
- c) 1000
- d) 10000

113. Observed frequencies are 14, 18, 12, 11, 15, 14. what is the expected frequency?

- a) 11
- b) 12
- c) 13
- d) 14

114. Pick the degrees of freedom for chi-square test for independence of attributes.

- a) $(r-1)(s-2)$
- b) $(r-2)(s-1)$
- c) $(r-1)(s-1)$
- d) $(r-2)(s-2)$

115. Tabulated value of chi-square test for 1 degrees of freedom at 5% level of significance is

- a) 2.90
- b) 3.12
- c) 3.84
- d) 4.88

116. Tabulated value of chi-square test for 5 degrees of freedom at 5% level of significance is

- a) 10.07
- b) 9.488
- c) 7.851
- d) 11.07

117. Tabulated value of F- test for (6, 5) degrees of freedom at 5% level of significance is

- a) 6.26
- b) 6.16
- c) 5.05
- d) 4.95

118. Tabulated value of F- test for (3, 10) degrees of freedom at 5% level of significance is

- a) 3.86
- b) 3.48
- c) 3.71
- d) 3.59

119. Tabulated value of t- test for 9 degrees of freedom at 5% level of significance is

- a) 2.306
- b) 2.262
- c) 2.228
- d) 2.365

120. IF Observed frequency are 14,18,12,11,15,14 and expected frequency is 14 . Find chi-square value

- a) 1.143
- b) 2.143
- c) 3.143
- d) 4.143

121. Which test can we using for ANOVA table?

- a) t-test
- b) F- test
- c) Chi-square test
- d) none

122. Various objects of comparison in a comparative experiment are termed as_____

- a) Blocks
- b) Brands
- c) Treatments

123. The _____ sum of squares measures the variability of the observed values around their respective treatment means.

- a) Treatment
- b) Error
- c) Means
- d) Total

124. In One way ANOVA , which of the following is used within the F-ratio as a measurement of the variance of individual observations?

- a) SSE
- b) MSE

- c) MSC
- d) NONE

125. One way classification observations are classified one factor between

- a) columns and rows
- b) only column wise
- c) columns or rows
- d) only row-wise

126. The Classification of a set observation according to two criteria of classification is

-
- a) One Way Classification
 - b) Two Way Classification
 - c) Latin square

127. If the Degrees of freedom for between columns in One way classification

- a) N-C-r
- b) N-C
- c) r-1
- d) C-1

128. If the degrees of freedom for between rows in two way classification

- a) N-C-r
- b) N-C
- c) r-1
- d) C-1

129. If the degrees of freedom for error sum of squares in one way classification

- a) N-C-r
- b) N-C
- c) N-r
- d) (C-1)(r-1)

130. If the total sum of the square =

a)
$$\frac{(\sum X_1)^2}{N_1} + \frac{(\sum X_2)^2}{N_1} + \dots - \frac{T^2}{N}$$

b)
$$\sum Y_1^2 + \sum Y_2^2 + \dots - \frac{T^2}{N}$$

c)
$$\sum X_1^2 + \sum X_2^2 + \dots - \frac{T^2}{N}$$

d)
$$\frac{(\sum Y_1)^2}{N_2} + \frac{(\sum Y_2)^2}{N_2} + \dots - \frac{T^2}{N}$$

131. Calculate the sum of the square between columns

a) $\frac{(\sum X_1)^2}{N_1} + \frac{(\sum X_2)^2}{N_1} + \dots - \frac{T^2}{N}$

b) $\sum Y_1^2 + \sum Y_2^2 + \dots - \frac{T^2}{N}$

c) $\sum X_1^2 + \sum X_2^2 + \dots - \frac{T^2}{N}$

d) $\frac{(\sum Y_1)^2}{N_2} + \frac{(\sum Y_2)^2}{N_2} + \dots - \frac{T^2}{N}$

132. Calculate the Sum of Square between rows

a) $\frac{(\sum X_1)^2}{N_1} + \frac{(\sum X_2)^2}{N_1} + \dots - \frac{T^2}{N}$

b) $\sum Y_1^2 + \sum Y_2^2 + \dots - \frac{T^2}{N}$

c) $\sum X_1^2 + \sum X_2^2 + \dots - \frac{T^2}{N}$

d) $\frac{(\sum Y_1)^2}{N_2} + \frac{(\sum Y_2)^2}{N_2} + \dots - \frac{T^2}{N}$

133. Calculate the error sum of square for two way classification is _____

a) TSS-SSE

b) TSS-SSR-SSK

c) TSS-SSC-SSR

d) None

134. If the degrees of freedom for error sum of square in two way classification

a) N-C

b) N-C-r-1

c) rC-1

d) N-C-r+1

135. If the degrees of freedom between Columns in Latin Square

a) C-1

b) N-C

- c) $K-1$
- d) $rC-1$

136. If the degrees of freedom for Error Sum of Square in Latin Square

- a) $(k-1)(k-1)$
- b) $N-C-r-k$
- c) $(K-1)(K-2)$
- d) square of $K-1$

137. Calculate the error sum of square in Latin Square is_____

- a) $TSS-SSC-SSK$
- b) $TSS-SSR-SSC$
- c) $SSR+TSS-SSC+SSK$
- d) $TSS-SSR-SSC-SSk$

138. Calculate the variance ratio between columns

- a) $\frac{MSE}{MSR} \text{ or } \frac{MSR}{MSE}$
- b) $\frac{MSC}{MSE} \text{ or } \frac{MSE}{MSC}$
- c) $\frac{MSE}{MSK} \text{ or } \frac{MSK}{MSE}$

139. Calculate the variance ratio between rows

- a) $\frac{MSE}{MSR} \text{ or } \frac{MSR}{MSE}$
- b) $\frac{MSC}{MSE} \text{ or } \frac{MSE}{MSC}$
- c) $\frac{MSE}{MSK} \text{ or } \frac{MSK}{MSE}$

140. The variance ratio (MSC/MSE) less than 1. then take_____

- a) $F_C = \frac{MSC}{MSR}$
- b) $F_R = \frac{MSC}{MSE}$

$$c) F_c = \frac{MSE}{MSC}$$

141. IF three main brands are I,II,III and groups A=0,5,8; B=4,8,19; C=8,13,11; D=15,6,13.

Find SSR

- a) 80.2
- b) 1008.3
- c) 225.3
- d) 305.7

142. IF three main brands are I,II,III and groups A=0,5,8; B=4,8,19; C=8,13,11; D=15,6,13.

Find TSS

- a) 80.2
- b) 1008.3
- c) 225.3
- d) 305.7

143. IF three main brands are I,II,III and groups A=0,5,8; B=4,8,19; C=8,13,11; D=15,6,13.

Find T

- a) 12
- b) 110
- c) 150
- d) 80

144. IF three main brands are I,II,III and groups A=0,5,8; B=4,8,19; C=8,13,11; D=15,6,13.

Find T

- a) 12
- b) 110
- c) 150
- d) 80

145. Calculate the mean sum of squares between groups

- a) Sum of squares residual /d.f
- b) D.f/ Sum of squares error
- c) Sum of squares between groups/D.f
- d) D.f/Sum of squares between groups

146. Calculate the mean sum of squares within groups

- a) Sum of squares within groups /d.f
- b) D.f/ Sum of squares error
- c) SSC/D.f
- d) D.f/Sum of squares between groups

147. The critical F value with 8 numerator and 29 denominator degrees of freedom at 0.01 level value_____

- a) 2,28
- b) 3.20
- c) 3.33
- d) 3.64

148. The critical F value with 6 numerator and 60 denominator degrees of freedom at 5% level value is _____

- a) 3.74
- b) 2.25
- c) 2.36
- d) 1.96

149. If TSS = 439.6, SSC = 304.27 and SSR = 73.6. Find SSE

- a) 61.73
- b) 56.43
- c) 64.5
- d) 43.65

150. If TSS =104, SSC = 42 and SSR = 22 Find SSE

- a) 50
- b) 44
- c) 40
- d) 541.