

TELANGANA UNIVERSITY
S.S.R. DEGREE COLLEGE, NIZAMABAD (C.C:5029)
IV SEMESTER INTERNAL ASSESSMENT II EXAMINATIONS
STATISTICS QUESTION BANK

I. Answer the following questions

1. In small sample test, size of the sample is (a)
 - a) < 30
 - b) > 30
 - c) $= 30$
 - d) None
2. In Conducting of student t-test, population " σ " is (b)
 - a) Known
 - b) Unknown
 - c) Independent
 - d) None
3. Degrees of freedom for t-test for two population means (c)
 - a) $n_1 + n_2 - 1$
 - b) $n_1 + n_2 + 1$
 - c) $n_1 + n_2 - 2$
 - d) None
4. In χ^2 - test cell frequencies should be _____ (d)
 - a) Equal
 - b) Not equal
 - c) Non - Linear
 - d) Linear
5. χ^2 - test for goodness of fit discovered by _____ (a)
 - a) Pearson
 - b) Fisher
 - c) Gosset
 - d) None
6. In χ^2 - test , " O_i ", $i=1,2,\dots,n$, means _____ frequency (b)
 - a) Expected
 - b) Observed
 - c) Sample
 - d) None
7. In χ^2 - test for independence of attributes, $N =$ _____ (c)
 - a) $a + b + c - d$
 - b) $a + b - c + d$
 - c) $a + b + c + d$
 - d) None
8. In F-test, $S_1^2 > S_2^2$ then, $F =$ _____ (d)
 - a) S_1^2
 - b) S_2^2
 - c) $\frac{S_2^2}{S_1^2}$
 - d) $\frac{S_1^2}{S_2^2}$
9. In F-test, $S_2^2 > S_1^2$ then $F =$ _____ (a)
 - a) $\frac{S_2^2}{S_1^2}$
 - b) $\frac{S_1^2}{S_2^2}$
 - c) S_1^2
 - d) S_2^2
10. Degrees of freedom for F-Test is _____ (b)
 - a) $(n_1 - 1, n_2 - 2)$
 - b) $(n_1 - 1, n_2 - 1)$
 - c) $(n_1 - 2, n_2 - 2)$
 - d) None
11. If $\mu = 18.5$, $\sigma = 1.95$, $\bar{x} = 17.85$, $n = 14$ then $t =$ _____ (a)
 - a) 1.244
 - b) 1.25
 - c) 1.26
 - d) 2
12. If $x_i \sim N(\mu_1, \text{_____})$ (d)
 - a) μ_2
 - b) σ_1^2
 - c) (μ_1, μ_2)
 - d) $\frac{\sigma_1^2}{n_1}$
13. If $n_1 = 10$, $n_2 = 12$, $\bar{x} = 24$, $\bar{y} = 30$ and $\sigma = 5$ then $z =$ (b)
 - a) 2.8
 - b) -2.8
 - c) 3
 - d) 4

14. In paired t-test, $d_i =$ _____ (c)
 a) $x_i \times y_i$ b) $x_i + y_i$ c) $x_i - y_i$ d) None
15. Degrees of freedom for paired t-test (a)
 a) $n-1$ b) n c) $n-2$ d) None
16. In χ^2 -test, no theoretical cell frequency should be less than _____ (b)
 a) 4 b) 5 c) 6 d) 7
17. In χ^2 -test, $\sum(A_i) = \sum(B_j) =$ _____ (c)
 a) n b) n^2 c) N d) N^2
18. In Non-parametric tests, sample observations (c)
 a) Dependent b) Equal c) Independent d) None
19. In Non-parametric test, the variable is _____ (a)
 a) Continuous b) Discrete c) PMF d) None
20. In Non-parametric test, lower order _____ exist (a)
 a) Moments b) PGF c) MGF d) None

II. Fill in the Blanks.

1. Sign test for one sample, $Z = \frac{u - \frac{n}{2}}{\sqrt{\frac{n}{4}}}$
2. Sign test for two samples, $Z = \frac{u - \frac{n}{2}}{\sqrt{\frac{n}{4}}}$
3. Wald- Wolfowitz run test for one sample, $Z = \frac{r_1 < r < r_2}{\dots}$
4. Run test for two samples, $Z = \frac{r_1 < r < r_2}{\dots}$
5. Wilcoxon signed rank test, $Z = \frac{T - \frac{n(n+1)}{4}}{\sqrt{\frac{n(n+1)(2n+1)}{24}}}$
6. Mann-Whitney U-test, $Z = \frac{u = n_1 n_2 + \frac{n_2(n_2+1)}{2} - T}{\dots}$

$$7. \text{ Median } \chi^2 - \text{test} = \frac{N(ad - bc)^2}{(a+c)(b+d)(a+b)(c+d)}$$

8. In Non-Parametric tests we cannot estimate the population parameters.

9. Parametric Methods are robust

10. In Non-Parametric tests median is usual measure for testing the hypothesis.

$$11. \text{ t-test for single mean " } \sigma \text{ " is unknown} = \frac{\bar{x} - \mu}{S / \sqrt{n-1}}$$

12. Degrees of freedom for single mean n-1

13. D.F for t-test for correlation n-2

14. D.F for χ^2 - test for independence of attributes (r-1)(s-1)

$$15. \chi^2\text{-test for single variance} = \frac{nS^2}{\sigma^2}$$

$$16. \chi^2\text{-test for goodness of fit} = \frac{\sum (D_i - E_i)^2}{\sigma^2}$$

$$17. \text{ Expected frequencies, } E_{ij} = \frac{(Ai)(Bj)}{N}$$

18. If $S_1^2 = 9.46$, $S_2^2 = 7.37$ then $F = \underline{1.28}$

$$19. \text{ In F-test, } S_1^2 = \frac{n_1 S_1^2}{n_1 - 1}$$

$$20. \text{ In F-test, } S_2^2 = \frac{n_2 S_2^2}{n_2 - 1}$$

I. Answer the following questions in not more than two lines

1. Define Non – Parametric test?

A: It means we do not consider the population parameter.

2. Where we use order statistics?

A: Floods, earthquakes etc.

3. χ^2 Test for goodness of fit?

$$A: \chi^2 = \frac{\sum \sum (D_{ij} - E_{ij})^2}{E_{ij}}$$

4. t-test for equality of population means?

$$A: t = \frac{\bar{x} - \bar{y}}{\sigma \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

5. t – test for single mean ?

$$A: t = \frac{\bar{x} - \mu}{\sigma \sqrt{n}}$$

6. t-test for correlation?

$$A: t = \frac{r - f}{\sqrt{\frac{1 - r^2}{n - 2}}}$$

7. If $n = 200$, $r = 0.4$ then calculate the t-test?

$$A: t = 6.14$$

8. χ^2 Test for 2 X 2 contingency table?

$$A: \chi^2 = \frac{N(ad - bc)^2}{(a + b)(c + d)(a + c)(b + d)}$$

9. If $a = 208$, $b = 92$, $c = 32$ and $d = 168$ then $\chi^2 = \underline{\hspace{2cm}}$?

$$A: 136.75$$

10. If $S_1^2 = 9.46$, $S_2^2 = 7.37$ then, F-test = $\underline{\hspace{2cm}}$?

$$A: F = 1.28$$