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

I. Multiple choice questions.				
1. Statistical inference involves important kinds.				[a]
a. 2	b. 3	c. 4	d. 5	
2. Population means denoted by				[b]
a. X	b. <i>μ</i>	c. $\overline{X}$	d. $\sigma^2$	
3. Sample mean denoted by				[c]
a. X	b. <i>μ</i>	c. <i>X</i>	d. $\sigma^2$	
4. Sample proportion P =				[c]
a. X/N	b. x/N	c. x/n	d. None	
5. Student-t distribution was introduced by				[d]
a. Fisher	b. Neyman	c. C.R.Rao	d. Gosset	
6. Standard error of sample mean				[a]
$\sigma$	ь <sup>σ</sup>		d Nono	
a. $\frac{1}{\sqrt{n}}$	$\frac{n}{n}$	C. <i>X</i>	u. None	
7. Sampling distribution of sample mean from a normal population is				[b]
a. $\overline{x}$	b. <i>u</i>	c. $\sigma^2$	d. None	
8 Sampling distribution of 3	$\overline{\mathbf{r}}$ in normal non Variance			[d]
				[u]
a. <i>x</i>	b. <i>μ</i>	c. $\sigma^2$	d. <u>~</u>	
			n	r - 1
9. How many characteristics	to obtain a good estimator	- 2	-l -1	[a]
	D. 3	C. 2	0.1	[]_1
10. IN IVIVUE, $E(t) = \_$		• •	d Nana	נמן
$d. \varphi$		<b>C</b> . <i>φ</i>	u. None	
11. Mean of chi-square distribution				[a]
a. n	b. 2n	c. 3n	d. n-1	
12. Variance of chi-square distribution				[מ]
a. n	D. 2N	c. 3n	a. n-1	
13. Skewness of chi-square distribution				[a]
a. 8/n	b. 4/n	c. 3/n	d. 2n	
14. Chi-square distribution has a curve			1	[C]
a. normal	b. platy	c. lepto	d. None	
15. Chi-square distribution has skewness				[a]
a. Positive	b. Negative	c. Symmetrical	a. None	r - 1
10. Chi-square variate with 1 degree of freedom [a]				
$a\left(\frac{x-\mu}{2}\right)^2$	h $\frac{x-\mu}{\mu}$	$\mathbf{r}$ $\mathbf{Z}^2$	d None	
$\left( \sigma \right)$	$\sigma$	C. 2	a. None	
17. Method of maximum likelihood estimator introduced				[d]
a. Neyman	b. Gauss	c. C.R.Rao	d. Fisher	
18. MLE's are always consistent estimator but need not				[a]
a. Unbiased	b. Biased	c. Good	d. Perfect	
19. Method of moments was introduced by				[a]
a. Fisher	b. Pearson	c. Gauss	d. None	
20. Efficiency, E =				[b]
a. V <sub>2</sub> /V <sub>1</sub>	b. V <sub>1</sub> /V <sub>2</sub>	c. V <sub>1</sub>	d. V <sub>2</sub>	

- II. Fill in the blanks.
- 1. A finite subset of population is called sample
- 2. All the moments of odd order of t-distribution zero
- 3. Mean of t-distribution <u>0</u>
- 4. Chi-square distribution is to test the independence of attributes
- 5. F-distribution is to test the equality of two population variances
- 6. t-distribution is symmetric about the origin



9. Chi-square test is used to test goodness of fit.

- 10. The variance of t-distribution  $\frac{n}{n-2}$
- 11. Skewness of t-distribution <u>0</u>

12. M.G.F of  $\chi^2$  - distribution (1-2t)<sup>-n/2</sup>

- 13. C.H.F of  $\chi^2$  distribution (1-2it)<sup>-n/2</sup>
- 14. In t-distribution M.G.F <u>does't</u> exist.
- 15. F-distribution mean <u>n<sub>2</sub>/n<sub>2</sub>-2</u>
- 16. Factorization theorem was introduced by neyman
- 17. An estimation is said to be unbiased, if  $E(t_n) = \underline{\theta}$

18. Method of moments, 
$$\mu_r^1 = \int x^r f(x_1, x_2, \dots, x_n) dx$$

- 19. MLE is not always unique and unbiased
- 20. Method of moments are less efficient than MLE

III. Short Answers.

1. Define parameter?

Ans: Population constants are called parameter.

2. Define statistic?

Ans: Sample characteristics like sample mean, variance etc are called statistic.

3. Define standard error?

Ans: The standard deviation of sampling distribution of a statistic.

4. Define point estimation?

Ans: Estimating the population parameter based on the sample observations.

5. Define Fisher t-statistic?

Ans: It is a ratio of standard normal variate and chisquare variate divided by its degrees of freedom.

- 6. Write any two methods of estimation?
- Ans: MLE, method of moments
- 7. What are the criteria of good estimator?
- Ans: Sufficiency, unbiasedness, efficiency and sufficiency
- 8. Write any two application of t-distribution?
- Ans: i) To test the difference between two sample means.
- 9. Method of likelihood can be expressed as?

Ans: 
$$L = \prod_{i=1}^{n} f(x_i, \theta)$$

10. Define interval estimation?

Ans: An estimate of population parameter given by two numbers between which the parameter may be considered to lie is called interval estimation.