

SRI VENKATESWSARA UNIVERSITY : TIRUPATI
STATISTICS SYLLABUS
Semester – V (CBCS With Non-Maths Combination Common to BA)
Paper – V : Statistical Application - 1

3 Hrs/Week

UNIT – I

Concepts of population, Sample, parameter, statistic, sampling distribution and standard error. Criteria of good estimator- Unbiasedness, Consistency, Efficiency and Sufficiency with examples (with out proofs). Fisher's Neyman factorization theorem Definition of Interval Estimation.

UNIT – II

Concepts of statistical hypotheses, Null and alternative hypothesis, Simple and Composite hypothesis, Critical region, One tailed and Two tailed tests, type-I and type-II errors, level of significance and power of a test, Statement of NP Lemma and uses.

UNIT – III

Large sample tests: Single sample mean and two sample means, single sample proportion and two sample proportions , Two sample standard deviations and simple problems.

UNIT – IV

Small sample Tests : Student t- test for single sample mean , two independent sample means , paired t -test , F – Test, χ^2 test for single sample variance, independence of attributes and simple problems.

UNIT – V

Non-parametric tests: Definition, Advantages and Disadvantages, comparison with parametric tests. One and two sample sign test and run test, Two independent sample Median test

List of Reference Books :

1. Fundamental of Mathematical Statistics by S.C.Gupta and V.K.Kapur,
2. Fundamentals of Statistics by Goon AM, Gupta MK, Das Gupta B :Vol-II, the World Press Pvt.Ltd., Kolakota.
3. Anuvartita Sankhyaka sastram – Telugu Academy.

V Semester Practicals: Statistics

Semester – V (CBCS With Non-Maths Combination Common to BA)

Paper V: Statistical Applications - 1

2 Hrs/Week

1. Large sample test for single mean
2. Large sample test for two sample means
3. Large sample test for single proportion
4. Large sample test for two sample proportions
5. Student t-test for single mean
6. Student t- test for independent sample means
7. Paired Student t-test
8. F-test
9. Chi square(χ^2) test for attributes
10. Two sample Sign test
11. Two sample Run test
12. Two sample Median test

THREE YEAR B.A. DEGREE EXAMINATION
CBCS – FIFTH SEMESTER
Part - II - STATISTICS (NM)
Paper V : Statistical Applications - 1
New syllabus w.e.f. 2017 - 18
MODEL PAPER

Time : 3 Hours

Max Marks : 75

PART - A

Answer any **FIVE** of the following questions.

Each question carries **5** marks

5X5 = 25 Marks

- 1 Define sampling distribution and standard error?
- 2 Explain the concept of interval estimation?
- 3 Discuss about Null and alternative hypothesis?
- 4 Explain large sample test for testing significant difference between sample mean and population mean?
- 5 A cubic die was thrown 9000 times such that the digit 2 or 5 appears 3336 times. Was the die unbiased at 5% level?
- 6 Describe about Paired student t- Test ?
- 7 Explain χ^2 test for testing the significance of population variance?
- 8 A company produces both good and defective items. Is the production at random by verifying the following data.

G, D, D, G, G, G, D, G, D, D, D, G, G, D, G, D, G, D, D, G, G, G, D

PART – B

Answer **ONE** question from each unit.

Each question carries 10 marks.

5x10 = 50 Marks

UNIT – I

9. Deduce sampling distribution of sample mean in Normal distribution?

(OR)

10. Describe various criteria to be satisfied by a good estimator?

UNIT – II

11. Explain the terms Simple ,Composite hypotheses and Critical region with examples?

(OR)

12. Explain the terms type-I and type-II errors with suitable examples?

UNIT – III

13. Describe a large sample test for testing equality between sample and population proportions?

(OR)

14. The average and SD marks of 45 BA and 53 B.Com students are given by 67.3, 64.8 and 10.2,12.6 respectively. Was the difference between sample means significant at 1% level?

UNIT – IV

15. Explain an exact sample χ^2 test for testing independence of two attributes?

(OR)

16. Describe about F- Test for equality of two variances?

UNIT - V

17. Explain about Parametric and Non-parametric tests and mention their Advantages and Disadvantages?

(OR)

18. Discuss about Two Sample Run test for testing randomness of the data?

SRI VENKATESWSARA UNIVERSITY : TIRUPATI

STATISTICS SYLLABUS

Semester – V (CBCS With Non-Maths Combination Common to BA)

Paper – VI : *Sampling Techniques*

3 Hrs/Week

UNIT – I

Sampling Theory: Population , Sample, Sampling versus census, sample survey meaning , Principle steps in a sample survey. limitations of sampling survey.

UNIT- II

Sampling Methods: sampling and Non-Sampling errors, Purpose sampling, Judgment sampling, Quota Sampling, Cluster sampling.

UNIT – III

Simple Random sampling: Definition, Merits and Demerits, SRSWOR, SRSWR, Distinguish SRSWOR and SRSWR, Lottery Method and Random number table method, Sample mean is an unbiased estimate of population mean, simple problems

UNIT – IV

Stratified random sampling: Meaning of stratified random sampling, merits and demerits. Allocation of sample sizes through proportional and Optimum allocations, simple problems

UNIT – V

Systemic random sampling: Definition, Advantages and Disadvantages of systematic random sampling, Comparison of variances in SRSWOR , Stratified and systematic samplings.

List of reference books :

1. Fundamentals of Applied Statistics. By S.C.Gupta and V.K.Kapoor. Sultan Chand
2. B.A/B.Sc III Year Paper-IV Statistics- applied Sttistics- Telugu Academic by Prof.K.Srinivasa RAo, Dr.D. Giri,Dr.A.Anand, Dr.V.Papaiah Sastry
3. B.A/B.Sc Statistics Paper-III by
4. Prayoga Rachana and Visleshana – Telugu Academy.
5. K.V.S. Sarma: Statistics made simple : do it yourself on PC. PHI
6. Anuvartita Sankhyaka sastram – Telugu Academy.

V Semester Practicals : Statistics
Semester – V (CBCS With Non-Maths Combination Common to BA)

Paper VI: Sampling Techniques

2 Hrs/Week

1. Estimation of population mean, Variance by SRSWOR and its verification.
2. Estimation of population mean, Variance by SRSWR and its verification
3. Variance of sample mean in stratified random sampling
4. Allocation of Sizes through Proportional allocation
5. Allocation of Sizes through optimal allocation
6. Showing of $V(\text{Opt}) \leq V(\text{Prop}) \leq V(\text{Ran})$
7. showing of $V(\text{sys}) \leq V(\text{st.rs}) \leq V(\text{Ran})$.

Note : The above practical are to be done using M S Excel Package where ever it is possible (Compulsory)

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Paper VI: Sampling Techniques
Revised syllabus w.e.f. 2017 - 18
MODEL PAPER

Time : 3 Hours

Max Marks : 75

PART - A

Answer any **FIVE** of the following questions.

Each question carries **5** marks

5X5 = 25 Marks

- 1 Explain the concepts (i) Population (ii) Parameter with examples?
- 2 Mention the limits of sampling?
- 3 Define purposive and Judgment sampling methods?
- 4 Describe about Pilot Survey ?
- 5 Explain about Random Number Tables method to draw simple random samples?
- 6 Give the properties of stratified random sampling method ?
- 7 Describe about proportional and optimum allocations?
- 8 Distinguish between simple random sampling and systematic sampling?

PART – B

Answer **ONE** question from each unit.

Each question carries 10 marks.

5x10 = 50 Marks

UNIT – I

9. Discuss the steps involved in large scale sample survey?

(OR)

10. Give the advantages of sample survey over census survey?

UNIT – II

11. Describe about sampling and non-sampling errors and how do you control them?

(OR)

12. Explain about probabilistic and non probabilistic sampling methods

UNIT – III

13. Define simple random sampling with and without replacement methods and give their properties.

(OR)

14. A population has the values -5,10,3,-2, and 11. Then draw simple random samples of size 2 by without replacement method and show that $E(\bar{y}) = \bar{Y}$

UNIT – IV

15. Explain the terms stratum, stratification and stratified random sampling with an example?

(OR)

16. A sample of 300 units has been taken from the population of 1200 units. The sizes and S.D of different strata are as follows. Then find the variances of sample mean under proportional allocation.

Stratum No.	1	2	3	4	5	6
Stratum Size	90	410	150	250	200	100
S D	6.2	3.1	17.4	21.2	7.3	8.1

UNIT - V

17. Mention the advantages and disadvantages of systematic sampling?

(OR)

18. Explain the differences and relationships between simple random, stratified random and systematic sampling methods