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| Lesson plan of mathematics,session 2020-21  **B.Sc-3rd sem(Statistics)** |  |
| **Weeks** |  **Chapter**  |  |
| 1 | Statistical Estimation: Parameter and Statistic, Sampling Distribution of statistic. Point and estimate of a parameter, Concept of bias of Standard error of an estimate. |  |
| 2 | Standard errors standard sample mean, sample proportion, deviation, Unbiasedness, Efficiency, Consistency and Sufficiency.  |  |
| 3 | **Methods of Estimation:**Method of moments and maximum likelihood **Testing of Hypotheses:** Null and alternative hypotheses. Simple and compositehypotheses, critical region, level of significance, one taile |  |
| 4 | two tailed testing, Types of errors, Neyman- Pearson Lemma, Test of simple hypothesis against a simple alternative in case of Binomial, Poisson and Normal distribution.  |  |
| 5 | **Large Sample Test:** Testing and interval estimation ofa single mean and a single proportion  |  |
| 6 | difference of two means of two proportions. Fisher’s Z transformation |  |
| 7 | Concepts of census and sample survey, basic concepts in sampling. Sampling and Nonsampling errors. |  |
| 8 | Principal steps involved in a sample survey; bias, precision and accuracy and mean squared errors.  |  |
| 9 | Some basic sampling methods: Simple Random Sampling (SRS) with and without replacement. |  |
| 10 | Use of random number tables, estimator of mean and its variance in case of simple random sampling. Estimators of proportions and ratios.  |  |
| 11 | Stratified random sampling, estimation of population mean, variance of the estimate of population mean of stratified random sampling, allocation of sample size, |  |
| 12 | proportional allocation, optimum allocation, comparison of stratified random sampling with simple random sampling, systematic random sampling and its various results about variance.  |  |