|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | Name of the Assistant/Associate Professor: Dr. Jyoti | | Class and Section: B.Sc hons (1st sem) | | Subject: STATISTICS | | Paper: Discriptive Statistics | |  | | October | | Week 2  Introduction of Statistics, Basic knowledge of various types of data.  Examples and problems | | Week 3  Collection,  Classification and tabulation of data.  Discuss problems  Class test | |  | | Week 4  Presentation of data: histograms, frequency polygon,  frequency curve and ogives.  Stem- and- Leaf and Box plots  Examples  Class test | |  |  |  | | --- | | November | | Week 1  Diwali Holiday | |  | | Week 2  Unit -2  Measures of Central Tendency and Location: Mean, median  Examples  Problem discussion  Test | |  | | Week 3  Measures of Central Tendency and Location: mode, geometric mean,  harmonic mean, partition values.  Numericals  Problems  Test | |  | | Week 4  Measures of Dispersion: Absolute and relative measures of range, quartile deviation,  mean deviation,  Numericals  Measures of Dispersion: standard deviation, coefficient of variation.  Problem discussion  Test | |  | |  | | December | | Week 1  Unit -3 | | Assignments:  Moments, Skewness and Kurtosis: Moments about mean and about any point and  derivation of their relationships  numericals  test | | Week 2 | | Assignments:  effect of change of origin and scale on moments  Numericals  Presentation  Test | | Week 3 | | Assignments:  effect of change of origin and scale on moments  Numericals  Problems  Presentations | | Week 4 | | Assignments:  Concepts of  Skewness and Kurtosis.  Numerical  Assignment | | Week 5 | | Assignments:  Disscus problems  Numerical  Test |  |  | | --- | | January | | Week 1  Unit- 4 | | Assignments:  Theory of Attributes: Symbolic notation, dichotomy of data, class frequencies, order of  class frequencies  problems  test | | Week 2 | | Assignments:  consistency of data, independence and association of attributes  assignment  problem discussion  test | | Week 3 | | Assignments:  Yule’s  coefficient of association and coefficient of colligation.  Numericals  Assignment  Test | | Week 4 | | Assignments:  Correlation for Bivariate Data: Concept and types of correlation  Assignment  Test  Scatter diagram, Karl  Pearson Coefficient (r) of correlation  Numerical  Presentation  rank correlation coefficient  Revision |  |  | | --- | | Name of the Assistant/Associate Professor: **Dr. Sudesh** | | Class and Section: Math-Honrs 3-Sem | | Subject: Statistics | | Paper: Probability Distributions | | October | | Week 2; Unit 1  Generating Functions: Moment generating function, Properties and applications of moment generating function,Examples and problems | | Week 3  Cumulant generating function, Properties and applications of cumulant generating function, Discuss problems,Class test | | Week 4  Tchebychev's inequality, Numerical problems based on Tchebychev's inequality, Bernoulli Distribution |  |  | | --- | | November | | Week 1, Holiday | | Week 2, Unit -2  Binomial distribution, Problem discussion | | Week 3  Possion distribution along with its properties, Numerical Problems, Class test | | Week 4  Geometric distribution along with its properties and Hyper-geometric Distribution | | December | | Week 1, Unit -3  Uniform and gamma distribution with their properties, Numerical test | | Week 2  Beta first kind and second kind distribution with their properties Presentation and Test | | Week 3  Exponential distribution with its properties, Numerical Problems | | Week 4  Assignments, Presentation on distributions | | Week 5  Assignments: Discuss problems, Numerical and Test | |  |  |  | | --- | | January | | Week 1, Unit- 4  Introduction to normal distribution, Normal distribution as limiting case of binomial distribution problems | | Week 2  Assignments: characteristics of normal distribution, Mode and median of normal distribution, m.g.f. and c.g.f of normal distribution  problem discussion | | Week 3  Assignments:  Mean deviation about mean and area property of normal distribution  Problem discussion, Class test | | Week 4  Assignments: Numerical problems based on normal distribution | | Week 5  Assignments: Problem discussion, Presentation , and Class test |  |  | | --- | | **Name of the Assistant/Associate Professor: DrJyoti** | | **Class and Section: BSc II/ BA II (Sem III)** | | **Subject: Statistics** | | **Paper:** Sample Surveys and Elementary Inference | | **October** | | **Week 2**  **Chapter**  Concepts of census, Sample survey, Basic concepts in sampling,Sampling errors, Non sampling errors, Principal steps involved in a sample survey | |  | | **Week 3**  **Chapter**  Accuracy and mean squared errors, Some basic sampling methods, Simple random sampling (SRS) with replacement, Simple random sampling without replacement, TEST | | **Week 4**  **Chapter**  Use of random number tables, Estimator of mean, Estimator of its variance in case of simple random sampling, Estimators of proportions, Estimators of ratios | | **November** | | **Week 1**  **Holidays** | | **Week 2**  **Chapter**  Stratified random sampling, Estimation of population mean, Test, | |  | | **Week 3**  **Chapter**  Variance of the estimate of population mean of stratified random sampling, Allocation of sample size, Proportional allocation, Optimum allocation, Comparison of stratified random sampling with simple random sampling | | ***Assignments:*** | | **Week 4**  **Chapter**  Systematic random sampling, Its various results about variance  Test | |  | | **December** | | **Week 1**  **Chapter**  Statistical Estimation: Parameter and statistic, Sampling distribution of statistic, Point estimate of a parameter, Test | |  | | **Week 2**  **Chapter**  Concept of bias and standard error of an estimate, Standard errors of sample mean, Sample proportion, Standard deviation, Characteristics of good estimator | | **Week 3**  **Chapter**  Unbiasedness, Efficiency, Sufficiency, Methods of Estimation, Method of moments | | ***Assignments:*** | | **Week 4**  **Chapter:**  Method of maximum likelihood, Testing of Hypotheses, Null hypotheses, Alternative hypotheses, Simple and composite hypotheses, Critical region | |  | | **Week 5**  **Chapter:**  Level of significance, One tailed testing, Two tailed testing, Types of errors, Test | | ***Assignments:*** | | **January** | | **Week 1**  **Chapter**  Neyman- Pearson Lemma  Test | |  | | **Week 2**  **Chapters**  Test of simple hypothesis against a simple alternative in case of Binomial | | ***Assignments:*** | | **Week 3**  **Chapter**  Poisson and Normal distribution, Large Sample Test, Testing and interval estimation of a single mean, A single proportion, Difference of two means of two proportions, Fisher’s Z transformation | |  | | **Week 4**  **Chapter:**  Sampling examples, Sampling based numericals, Comparison of hypothesis, Numerical on large sample test, Numerical, Errors comparison, Revision | |  |  |  | | --- | | **Teacher 's name : Sandeep Kumar** | | **Class and Section: B.Sc. III (Mathshons)(5th Sem)** | | **Subject: MATHEMATICS** | | **Paper: Operation Research** | |  | | **August** | | **Week 2 : Definition, scope, methodology and applications of OR. Types of OR models. Concept of optimization.** | | **Week 3 : Linear Programming : Introduction, Formulation of a linear programming problem (LPP), Requirements of an LPP.** | | **Week 4 : Advantages and limitations of LP.** | | **September** | | **Week 1 : Graphical solution : Multiple, unbounded and infeasible solutions.** | | **Week 2 : Revision and Test** | | **Week 3 : Principle of simplex method : standard form, basic solution, basic feasible solution.** | | **Week 4 : Computational Aspect of simplex method : cases of unique feasible solution, no feasible solution, multiple solution.** | | **Week 5 : Revision and Test** | | **October** | | **Week 1**  **Unbounded solution and degeneracy. Two Phase and BigM methods** | | **Week 2 : Revision and Test** | | ***Assignments:*** | | **Week 3 : Duality in LPP, primal-dual relationship** | | ***Assignments:*** | | **Week 4 : Transportation Problem: Methods for finding basic feasible solution of a transportation problem** | | **Week 5 : Revision and Test** | | **November** | | **Week 1: Modified distribution method for finding the optimum solution** | | ***Assignments:*** | | **Week 2 : Unbalanced and degenerate transportation problems** | | ***Assignments:*** | | **Week 3 : Transshipment problem** | | **Week 4 : Maximization in transportation problem** | | **Week 5 : Revision and Test** | |  | | ***December*** | | **Week 1 : Assignment Problem : Solution by Hungarian method.** | | **Assignments:** | | **Week 2 : Crew assignment and Travelling salesman problem** | | **Assignments:** | | **Week 3 : Game Theory : Two-person zero sum game, Game with saddle points, the rule of dominance; Algebraic, graphical.** | | **Assignments:** | | **Week 4 : Linear programming methods for solving mixed strategy games** | | **Assignments :** | | **Week 5 : Revision and Test** | | **January** | | **Week 1 : Unbalanced assignment problem** | | **Week 2 : Maximization in assignment problem** | | **Week 3 : Revision and Test** | | **Week 4 : Revision and Test** | | **Week 5 : Revision and Test** |  |  | | --- | | **Teacher 's name : Sandeep Kumar** | | **Class and Section: B.Sc. Ist Year (Mathshons)(1st Sem)** | | **Subject: STATISTICS** | | **Paper: PROBABILITY THEORY, STATISTICAL METHODS** | |  | | **NOVEMBER** | | **Week 5 : Revision and Test** | | **DECEMBER** | | **Week 3 : Revision and Test** | | **JANUARY** | | **Week 1 : Introduction of Statistics :** Origin, development, definition, scope, uses and limitations. | | **Week 2 : Types of Data :** Qualitative and quantitative data, nominal and ordinal data, cross sectional and time series data, discrete and continuous data, frequency and non-frequency data. | | **Week 3 : Collection and Scrutiny of Data :** Collection of primary and secondary data-its major sources including some government publications, scrutiny of data for internal consistency and detection of errors of recording, classification and tabulation of data. | | **Week 4 : Presentation of Data :** Diagrammatic and graphical presentation of grouped data. Graphing the data constructing histograms, frequency polygon, frequency curve and ogives. | | **Week 5 : Revision and Test** | | **FEBRUARY** | | **Week 1: Measures of Central Tendency and Location :** Mean, median, mode, geometric mean, harmonic mean ; partition values-quartiles, deciles, percentiles and their graphical location. | | **Week 2 : Measures of Dispersion :** Absolute and relative measures of range, quartile deviation, Mean deviation, standard deviation (σ), root mean square deviation (s), relation between σ and s, variance of the combined series, Coefficient of variation. | | **Week 3 : Moments, Skewness and Kurtosis :** Moments about mean and about any point and derivation of their relationships, effect of change of origin and scale on moments, Sheppard’s correction for moments (without derivation), Charlier’s checks; concepts of Skewness and Kurtosis and their measures/coefficients including those based on quartiles and moments. | | **Week 4 : Theory of Attributes :** Symbolic notation, dichotomy of data, class frequencies, order of class frequencies, consistency of data, independence and association of attributes. Yule’s coefficient of association and coefficient of colligation. | | **Week 5 : Revision and Test** | |  | | ***December*** | | **Week 1 : Assignment Problem : Solution by Hungarian method.** | | **Assignments:** | | **Week 2 : Crew assignment and Travelling salesman problem** | | **Assignments:** | | **Week 3 : Game Theory : Two-person zero sum game, Game with saddle points, the rule of dominance; Algebraic, graphical.** | | **Assignments:** | | **Week 4 : Linear programming methods for solving mixed strategy games** | | **Assignments :** | | **Week 5 : Revision and Test** | | **January** | | **Week 1 : Unbalanced assignment problem** | | **Week 2 : Maximization in assignment problem** | | **Week 3 : Revision and Test** | | **Week 4 : Revision and Test** | | **Week 5 : Revision and Test** |  |  | | --- | |  | | **Week 3**Transshipment problem, | | **Week 4**maximization in a transportation problem. | | **January** | | **Week 1**  Assignment Problem: Solution by Hungarian method, Unbalanced assignment problem, maximization in an assignment problem | | ***Assignments:*** | | **Week 2**  Crew assignment and Travelling salesman problem | | ***Assignments:*** | | **Week 3**  Game Theory: Two-person zero sum game, Game with saddle points, the rule of dominance; Algebraic,graphical. | | ***Assignments:*** | | **Week 4** linear programming methods for solving mixed strategy games | | ***Assignments:*** |   **Lesson Plan**  OCTOBER 2021 TO JANUARY 2022   |  | | --- | | **Teacher 's name : SANDEEP KUMAR** | | **Class and Section: B.Sc. 1st Year(1st Semester)** | | **Subject: STATISTICS** | | **Paper: PROBABILITY THEORY, STATISTICAL METHODS** | | **October** | | **Week 2:Basic concepts of probability,set theory,union, intersection, complement of a set** | | **Week 3 : Concepts in Probability :** Random experiment, trial, sample point, sample space, operation of events, exhaustive, equally likely and independent events; Definition of probability classical, relative frequency. | | **Week 4 :Statistical and axiomatic approach:** Addition and multiplication laws of probability and their extension to n events. Boole’s inequality; Bayes theorem and its applications. | | **Week 5 : Revision and Test** | | **November** | | **Week 1 : Random Variable and Probability Functions:** Definition and properties of random variable, discrete and continuous random variable, probability mass and density functions, distribution functions. | | **Week 2 : Mathematical Expectation :** Definition and its properties-moments, measures of location, dispersion, skewness and kurtosis. Addition and multiplication theorem of expectation. | | **Week 3 : Revision and Test.** | | **Week 4 : Generating Functions :** Moments generating function | | **Week 5 :** Cumulant generating function, probability generating function along with their properties. | | **December** | | **Week 1 : Introduction of Statistics :** Origin, development, definition, scope, uses and limitations. | | **Week 2 : Types of Data :** Qualitative and quantitative data, nominal and ordinal data, cross sectional and time series data, discrete and continuous data, frequency and non-frequency data. | | **Week 3 : Collection and Scrutiny of Data :** Collection of primary and secondary data-its major sources including some government publications, scrutiny of data for internal consistency and detection of errors of recording, classification and tabulation of data. | | **Week 4 : Presentation of Data :** Diagrammatic and graphical presentation of grouped data. Graphing the data constructing histograms, frequency polygon, frequency curve and ogives. | | **Week 5 : Revision and Test** | | **January** | | **Week 1: Measures of Central Tendency and Location :** Mean, median, mode, geometric mean, harmonic mean ; partition values-quartiles, deciles, percentiles and their graphical location. | | **Week 2 : Measures of Dispersion :** Absolute and relative measures of range, quartile deviation, Mean deviation, standard deviation (σ), root mean square deviation (s), relation between σ and s, variance of the combined series, Coefficient of variation. | | **Week 3 : Moments, Skewness and Kurtosis :** Moments about mean and about any point and derivation of their relationships, effect of change of origin and scale on moments, Sheppard’s correction for moments (without derivation), Charlier’s checks; concepts of Skewness and Kurtosis and their measures/coefficients including those based on quartiles and moments. | | **Week 4 : Theory of Attributes :** Symbolic notation, dichotomy of data, class frequencies, order of class frequencies, consistency of data, independence and association of attributes. Yule’s coefficient of association and coefficient of colligation. | | **Week 5: Revision and test** |   **Name of the Assistant Professor: Dr. Permila** |
| **Class and Section: BA/BSC Vth Sem** |
| **Subject: Statistics** |
| **Paper: Applied Statistics, Numerical Methods & Fundamentals of Computers** |
|  |
|  |
| October  Week 2  Index Number: definition, problems involved in the construction of index numbers, calculation of index numbers-simple aggregate method, weighted aggregates method |
| Week 3  Simple average of price relatives, weighted average of price relatives, link relatives, chain indices, value index numbers, price and quantity index numbers, Laspeyre’s, Paasche’s, Marshall-Edgeworth and Fisher’s index numbers |
|  |
| Week 4  Time and factor reversal tests of index numbers, consumer price index number and its uses. Base shifting, splicing and deflating of index numbers |
| November  Week 1  Time Series Analysis: Definition, components of time series-trend, seasonal variations, cyclic variations, irregular component, illustration, additive and multiplicative models, determination of trend-graphic method |
| Week 2  Semi-averages method, method of curve fitting by principle of least squares, growth curves and their fitting, moving average method. Analysis of seasonal fluctuations. |
| Week 3  Construction of seasonal indices using method of simple averages, ratio to trend method, ratio to moving average method and link relative method. |
| Week 4  Demographic Methods: Sources of demographic data-census, register, adhoc survey, hospital records, measurement of mortality, crude death rate, specific death rate, standardized death rates. |
| December  Week 1  Complete life tables and its main features, assumptions, descriptions and construction of life tables, uses of life tables, Abridged life table using King’s method, stationary and stable population. |
| Week 2  Measurement of fertility-crude birth rate, general fertility rate, specific fertility rate, total fertility rate, measurement of population growth, gross reproduction rate, net reproduction rate. |
| Week 3  Numerical Methods: Difference tables, methods of interpolation, Newton’s formula for forward and backward interpolation with equal intervals |
| Week 4  Lagrange’s method of interpolation, Divided differences, numerical integration, General Quadrature formula for equidistant ordinates, Trapezoidal rule, Simpson’s one-third and three-eight formula. |
| Week 5  Basic of Computer: Introduction, origin, development, uses and limitation of computers. Types of computers, computer structure, input-unit, CPU, output unit, secondary storage, High level and low level languages, compiler and interpreter. |
| January  Week 1  Computer Arithmetic: Floating point representation of numbers, arithmetic operations with normalized floating point numbers. Number systems- Binary, decimal, octal |
| Week 2  Hexadecimal number systems and their conversions into each other. Binary arithmetic’s, (Addition, subtraction, multiplication & division). |
| Week 3  Flow Charts and Algorithm: Concepts of flow chart, algorithm and programming. Flow charts and algorithms for the following: Mean, Standard Deviation, |
| Week 4  Coefficient of Correlation, Straight line fitting. Trapezoidal rule, Simpson’s 1/3rd and 3/8th rules |
| Week 5  Revision and doubt class |
|  |

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |