

Syllabus of S.Y.B.A. (Statistics) Yearly for external students
Effective from June 2015-16

Paper-III

Unit-I	Sampling Difference between complete census survey & sampling method of survey. Advantages of sample survey method over complete census. Requirement of a good sample. Principle steps in a sample survey Limitations of sampling. Types of sampling methods. Simple random sampling. Selection of simple random sample. Merits & Demerits of simple random sampling. Stratified random sampling Purpose of stratified random sampling. Advantages & disadvantages of stratified random sampling. Examples	20%
Unit-II	Analysis of variance Meaning of Analysis of variance. Advantages of Analysis of variance. One way classification and Two way Classification. Examples.	15%
Unit-III	Time series analysis. Meaning of time series. Uses of Time series. Components of Time series. Meaning of trend. Methods of measurement of trend : (i) Graphical method, (ii) Moving average method, (iii) Least Squares method. Merits & demerits of moving average method, Least Squares method. Meaning of seasonal fluctuations Measurement of seasonal fluctuations by method of simple and moving averages. Examples.	15%
Unit-IV	Statistical Quality control. Definition of SQC Variations due to chance causes, variations due to assignable causes. Theory of quality control charts , Theory of runs Advantages of statistical quality control charts. Construction, uses and interpretations of control charts for mean & range. Control charts for proportion of defectives, number of defective items & number of defects per unit. Difference between variable & Attribute charts. Examples.	20%
Unit-V	Single & Double acceptance sampling plans for attributes, concept of producer's & consumer's risk.	15%

Ideas of OC curve & ideal OC curve. AOQ curve & interpretation of AOQL from it.

ASN & ATI curves.

Examples.

Unit-VI

Indian Official statistics.

15%

Central Statistical Organization (CSO), National Sample Survey Organization (NSSO), Industrial and Agricultural statistics.

References

- (1) Cochran, W.G. (1997) : Sampling Techniques
3rd Ed., Wiley Eastern Limited.
- (2) Goon, Gupta Fundamentals of statistics
Dasgupta 4th Ed., Bhattacharya world press, Calcutta
- (3) S. M. Shah (1976): નિદર્શન પદ્ધતિઓ અને પ્રાયોગિક અભિકલ્પનાઓ.
2nd Ed., Uni. Granthnirman Board, Ahmedabad.
- (4) M.C.Jayswal (1974): Arth Vishayaka Ankdashashtra, Univ. Granth Nirman Board, Ahmedabad.
- (5) Mukhopadhyay P.(1979): Applied statistics
Allied Pub. Kolkotta
- (6) R.T.Ratani Sankhiya gunvatta niyantran (gujarati edition)
2nd Edi., Uni. Granthnirman Board, Ahmedabad.
- (7) E.L.Grant Statistical quality control
3rd Edi., Tata Mc-GrawHill Com.
- (8) M.C.Jayswal Arthvishayak ankadashashtra.
3rd Edi., Uni. Granthnirman Board, Ahmedabad.
- (9) D.J. Cowden Statistical methods in Quality control.
- (10) A.J.Duccan Quality Control & industrial statistics.

Paper-IV

Unit-I	Demand & supply Meaning of demand & supply. Demand & supply function. Assumptions of demand function. Assumptions of supply function. Graphical representation of demand & supply curve. Market equilibrium. Price elasticity of demand. Interpretation of price elasticity of demand. Price elasticity of supply. Interpretation of price elasticity of supply. Revenue & cost functions. Examples.	20%
Unit-II	Vital statistics. Meaning of vital statistics. Uses of vital statistics. Measurement of Mortality. Crude Death rate & its merits & demerits. Specific death rates & its merits & demerits.	15%
Unit-III	Fertility rates: General fertility rates (GFR), Specified fertility rates (SFR), Total fertility rates (TFR) & its examples. Reproduction rates: Net reproduction rates (NRR), Gross reproduction rates (GRR) & its examples. Life table: Definition, uses, limitations & its examples.	15%
Unit-IV	Operations research (OR) Meaning of OR Scope of OR Phases of OR Meaning of Linear Programming Problem (LPP) Mathematical formulation of LPP Definition of terms: basic solution, feasible solution, basic feasible solution, degerate basic feasible solution, ,nondegenerate basic feasible solution, unbounded solution, Optimum solution. Formulation of linear programming problems. Graphical method for solving LPP.	20%
Unit-V	Transportation problem Meaning & formulation of transportation problem. Balanced & unbalanced transportation problem Methods of finding initial BFS of a transportation problem. North west corner, Raw minima, Column minima, Matrix minima, Vogel's approximation method (VAM). Optimality test Examples.	15%
Unit-VI	Assignment problems. Meaning & mathematical formulation of assignment problem Difference between transportation & assignment problem.	15%

Hungarian method for solving assignment problems.

Unbalanced assignment problem

Maximization & minimization problem.

Examples.

References

- (1) Allen R.G.D. (1973) : Mathematical Analysis for economics.
- (2) M.C.Jayswal (1974): Arth Vishayaka Ankdashastra, Univ. Granth Nirman Board, Ahmedabad.
- (3) Handerson & Quant (1980): Micro economics, Mac –Graw Hills
- (4) D. Gujarati. (1979) : Basic Econometrics, Mac- Graw Hills.
- (5) Johnston J. (1982) : Econometric Methods. Mac-Graw Hills
- (6) Goon, Gupta & Das Gupta : Fundamentals of statistics; Bhattacharya world press, Calcutta.
- (7) Paria G. Linear programming, Transportation, Assignment Game Books & Allied Pvt. Ltd. , Kolkotta.
- (8) Grant E.L.(1964) Statistical quality control Mac Graw Hills.
- (9) Kanti Swarup P.K. Gupta & Man Mohan (1995)
Operation Research, Sultan chand & Sons, New Delhi.
- (10) Sharma S.D. (1998) Operation Research , Kedar Nath & Sons Meerut.
- (11) Sharma J.K.(1998) Operation Research Mac Milan pub. New Delhi
- (12) Hadley G. (1995) Linear programming . Narosa publishing House , New Delhi.