

MAHARAJA GANGA SINGH UNIVERSITY, BIKANER

Ph. D. COURSE WORK IN MATHS

UNIT-I

a) Concept of Research

Concept of research, characteristics & feature of research, objective of research, types of research, Survey (Review) of literature, criteria of good research. Utility of research, scope of research, Reliability and validity of research, limitations of research.

b) Process of Research:

Steps in research process, defining the problem, extreme literature survey, developing the hypotheses, preparing the research design, determining the sample design, collection of data, analysis and interpretation of data, preparation of research report, follow up of the report

c) Research Design:

Research design, concept of research design, characteristic of research design, objective of research design, elements of research design, guide line for developing research design. type of research design, exploratory research, descriptive research, experimental research, factors affect the construction of research design.

UNIT II

a) Experimental Techniques:

Experimentation, good experiment, advantage and limitation of experimentation, method of data collection, element of experimentation, procedure of planning and conducting the experiment, setting of experiments, randomized design, randomized block design, Latin square design and factorial design, sources of biases or error in experimental data.

b) Data collection Sources:

Data collection process, sources and types of data research, Sources of collecting primary data, Source of collecting the secondary data, Scrutiny of secondary data. Advantage and limitation of secondary data, primary v/s secondary data.

c) Method and Techniques of Data collection. :-

Observation method, desk research, experimental research, field research(personal interview, mail order survey, telephonic survey)

UNIT III

a) Processing of data:

Editing of data, coding of data, classification of data(kind of classification, bases of classification), tabulation of data(Type of tables)

b) Diagrammatic and Graphics presentation of data:

Diagrammatic presentation, kind of diagrams (line, bar, rectangle, square, circle and pie diagrams), Graphical presentation

Kind of graphs (Histogram, Ogive curve)
(C) Interpretation of data:

Importance and significance of interpretation, interpretation technique process, guide lines of effective interpretation, skew ness (measure of asymmetry) , kurtosis . Objective of skewness and kurtosis)

(D) Fundamentals of Hypothesis testing :

Null hypothesis and alternate hypothesis , procedure of hypothesis testing , standard errors (type –I and type –II errors) one tail and two tail tests .

Non parametric tests: chi- square tests, sign test, run test, Wilcoxon Mann Whitney u test, kruskal Wallis test. Limitation of Non – parametric tests, parametric tests; students T-test , correlation coefficient , analysis of variance (ANOVA) , F-test ,uses of computer oriented data analysis tools (SPSS,SAS, EXCEL, minitab)

UNIT-IV

Research report:

Characteristics of a good research report, objectives of a research report, functions of a research report ,type of reports, format / contents of research report , report writing strategies ,steps in drafting (preparing) research report ,general guidelines for presenting graphics ,principles of report writing

The internet a viable research tool, equipment for internet – based research, design of internet survey case studies, searching for books articles, reviews and research papers, the web classification, evaluation citation and statistics.

Reference Books

1. Kothari, C.R.- Research Methodology - Method and Techniques
Publishers New Age – International Publisher's New Delhi
2. Gnpta , Santosh, - Research Methodology & Statistical Techniques Deep & Deep
Publishers New Delhi
3. Srivarlave U.K , et-al - Quantitative Technique for management decision Wiley Eastern,
New Delhi
4. Clair Hewson :- Internet Research Methods , sage publication.
5. Niall O Dochartaigli:- The Internet Research hand book (A Practical guide for research.)