

General Paper Syllabus for Ph.D. Entrance Test

UNIT-I RESEARCH METHODOLOGY

Marks -10

Purpose of research; Research project Conceptualization, choice of methods; Elements of a research proposal, operationalization. Choices and illustrations. Research design formula pretesting of research instrument and procedures units of analysis, time dimension. Experimental design and use of indicators in research. Survey Research: Guidelines. For asking question and questionnaires construction, Self-administered questionnaires Interview and other survey methods; their strength and weaknesses. Sampling: the logic of sampling, concept and terminologies, population and Sampling frames, types of sampling design. Field studies: steps in the conducting fields study; evaluation research: how to carry out evaluation research, Patent IPR. Qualitative, quantitative research design.

UNIT-II LITERATURE SEARCH TECHNIQUE

Marks -10

LITERATURE SEARCH TECHNIQUE: Purpose, source and style of writing research. Use of computer browsing for literature search and downloading – basics of internet services –various sources of abstracts, articles and papers of browsing and downloading, Techniques of conversion from one format to another Structure drawing programs and their uses –search through structure. Use of Literature, Knowledge of National and International Journals, Impact Factor, Citation-Index, h Index, SCI Journals, Plagiarism, Statistical Packages.

UNIT-III SAMPLING AND SCIENTIFIC ATTITUDE

Marks -5

Measurement and sampling technique and graph plotting (Boxplot, histogram etc.), Probability and Non-Probability Sampling.

Development of scientific temperament and ethical research practices, Identification of research problem and hypothesis formulation. Institutional ethics Committee and guidelines for health research.

UNIT-IV STATISTICAL ANALYSIS

Marks -10

Data Collection Technique, Report writing and communication, Various types of errors – precision and accuracy – significant figure, various statistical tests on the accuracy of results, positive and negative deviation from accurate result the binomial distribution, the Gaussian distribution – the normal distribution of random errors, Central tendency, variance and standard deviation, reliability interval, deviations, from the Gaussian law of error distribution, student's distribution, and t-test – comparison of the mean with the expected value, comparison of the precision of the result of two different methods, comparison of the precision

of two methods by F-test, Gross error and elimination of outlying results, graphical methods- Linear regression line, standard deviation, correlation coefficient- Multiple linear regression (one variable with two other variables).

UNIT-VI BASICS OF COMPUTER APPLICATIONS

Marks -15

Knowing computer: What is Computer, Basic Applications of Computer; Components of Computer System, Central Processing Unit (CPU), Keyboard and Mouse, Other input/output Devices, Computer Memory, Concepts of Hardware and Software; Concept of Computing, Data and Information; Applications of IECT; Connecting keyboard, mouse, monitor and printer to CPU and checking power supply.

Operating Computers and Operating System: What is an Operating System; Basics of Popular Operating Systems; The User Interface, Using Mouse; Using right Button of the Mouse and Moving Icons on the screen, Use of Common Icons, Status Bar, Using Menu and Menu-selection, Viewing of File and Folders, Creating and Renaming of files and folders, Opening and closing of different Windows; Using help; Creating Short cuts, Common utilities.

Understanding Word Processing: Word Processing Basics; Opening and Closing of documents; Text creation and Manipulation; Formatting of text; Table handling; Spell check, language setting and thesaurus; Printing of word document, Format Painter, different shortcut commands.

Using Spread Sheet: Basics of Spreadsheet; Manipulation of cells; Formulas and Functions; Editing of Spread Sheet, printing of Spread Sheet.

Making Small Presentation: Basics of presentation software; Creating Presentation; Preparation and Presentation of Slides; Slide Show; Taking printouts of presentation / handouts, animation in presentation.

Introduction to Internet, WWW and Web Browsers: Basic of Computer networks; LAN, WAN; Concept of Internet; Applications of Internet; connecting to internet; Knowing the Internet; Basics of internet connectivity related troubleshooting, World Wide Web; Web Browsing software, Search Engines; Understanding URL; Domain name; IP Address; Using e-governance website.
