

Veer Narmad South Gujarat University, Surat

Ph.D. Entrance Examination Syllabus

Faculty Of Science

Paper -I RESEARCH APTITUDE

General Instructions and Recommendations:

1. The present syllabus is designed for the Ph.D. entrance exam for the candidates who have completed M.Sc. in Any science subject
2. The entire syllabus having 05 units.
3. The question paper in the examination will have 50 MCQs in which 10 questions from each unit.
4. Candidate has to attempt any 25 questions, all having equal weightage. In case of more questions attempted by the candidate, only the first 25 questions will be counted for the result.
5. The options to the students is given on base of CSIR NET pattern.

Paper-I Units	Paper-I Topics
Unit-I: Research Aptitude	<ul style="list-style-type: none"><li>• Research: Meaning, types, and characteristics, positivism and post-positivistic approach to research</li><li>• Methods of research: Experimental, descriptive, historical, qualitative and quantitative methods</li><li>• Steps of research</li><li>• Research ethics</li></ul>
Unit-II:	<ul style="list-style-type: none"><li>• Sources, acquisition and classification of data</li></ul>

<p>Data Interpretation &amp; Statistics</p>	<ul style="list-style-type: none"> <li>• Quantitative and qualitative data</li> <li>• Graphical representation (bar-chart, histograms, pie-chart, table-chart and line-chart) and mapping of data</li> <li>• Measures of central tendency and dispersal; probability distribution and normal)</li> <li>• Sampling distribution, difference between parametric and non-parametric statistics;</li> <li>• Confidence Interval; Errors: Levels of significance, Regression and correction</li> </ul>
<p>Unit-III: Mathematical and Logical Reasoning /Aptitude &amp; Information and Communication Technology (ICT)</p>	<ul style="list-style-type: none"> <li>• Types of reasoning</li> <li>• Number series, letter series, codes and relationships</li> <li>• Mathematical aptitude (fraction, time &amp; distance, ratio, proportion and percentage,</li> <li>• Understanding the structure of arguments: Argument forms, structure of categorical propositions, mood and figure, formal and informal fallacies, uses of language, connotations and denotations of terms, classical square of opposition</li> <li>• Evaluating and distinguishing deductive and inductive reasoning</li> <li>• Venn diagram: Simple and multiple use for establishing validity of arguments</li> <li>• ICT: General abbreviations and terminology</li> <li>• Basics of Internet, Intranet, E-mail, Audio and Video-conferencing</li> </ul> <p>Applications of ICT in research</p>
<p>Unit-IV: Fundamentals and applications of Computer &amp;</p>	<ul style="list-style-type: none"> <li>• Introduction to computer, Introduction to GUI based Operating System</li> <li>• Elements of Word Processing and Spreadsheets</li> <li>• Computer communication, Internet, WWW and Web browsers</li> <li>• Innovation in research and development</li> </ul>

Innovation and IPR	<ul style="list-style-type: none"> <li>• Types of IP : Patents, Trademarks, Copyright &amp; Related Rights, Industrial Design,</li> <li>• Types of Patents, Patent infringement-meaning ,scope, litigation</li> </ul>
Unit-V: People, Development and Environment	<ul style="list-style-type: none"> <li>• Development and environment: Millennium development and Sustainable development goals</li> <li>• Human and environment interaction: Anthropogenic activities and their impacts on environment</li> <li>• Environmental issues: air pollution, water pollution, soil pollution, noise pollution,</li> <li>• Natural and energy resources: Solar, Wind, Soil, Hydro, Geothermal, Biomass, Nuclear and Forests</li> <li>• Natural hazards and disasters: Mitigation strategies</li> <li>• Montreal Protocol, Convention on Biodiversity, Kyoto Protocol</li> </ul>

**The list of important books recommended for preparation of Paper-I below:**

Paper-I Books	Author
Trueman's UGC NET/SET General Paper I	M Gagan and Sajit Kumar
NTA UGC NET/SET/JRF Paper I: Teaching and Research Aptitude by Pearson	KVS Madaan
General Paper-1 UGC NET/JRF/SLET – Teaching & Research Aptitude	Arihant Experts
Upkar's UGC-NET/JRF/SET Teaching And Research Aptitude (General Paper - I)	Dr Lal Jain and Dr KC Vashistha

Environmental Studies

Erach Bharucha