**PhD Course Work in Forensic Science**

Scheme of Examination of PhD (Course Work) Examination

<table>
<thead>
<tr>
<th>Paper No.</th>
<th>Nomenclature of the Paper</th>
<th>Internal Assessment</th>
<th>Theory</th>
<th>Seminar (if any)</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS:P01</td>
<td>Research Methodology</td>
<td>20</td>
<td>80</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>FS:P02</td>
<td>Statistics Analysis &amp; Computers</td>
<td>20</td>
<td>80</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>FS:P03</td>
<td>Techniques in Forensic Science</td>
<td>20</td>
<td>80</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>FS:P04</td>
<td>Review writing and presentation/Seminar</td>
<td>-</td>
<td>50</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

**Grand Total**  **400**
SYLLABUS OF THE PhD COURSE WORK (Forensic Science)

FS: P01 RESEARCH METHODOLOGY

Marks: 80.
Time Allowed: 3 hrs.

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of five sections A, B, C, D and E. Section A, B, C and D will have two questions from the respective sections of the syllabus carrying equal marks. Section E will consist of ten short answer type questions which will cover the entire syllabus uniformly. Short answer type questions (not more than five lines or fifty words) shall carry two marks each.

INSTRUCTIONS FOR THE CANDIDATE

Candidates are required to attempt one question each from the sections A, B, C and D of the question paper and the entire section E.

UNIT-A

UNIT-B

UNIT-C
Ethical, legal, social and scientific issues in Forensic research. A brief idea about the funding agencies such as DSF, DST, DBT, ICMR, CSIR and UGC. Role of IPR in Research and Development.

UNIT-D

Suggested Books:
2) Research Methodology- C.H. Chaudhary, RBSA Publication
FS: P02

STATISTIC ANALYSIS & COMPUTERS

Marks: 80.
Time Allowed: 3 hrs.

INSTRUCTIONS FOR THE PAPER SETTER

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INSTRUCTIONS FOR THE CANDIDATE

Candidates are required to attempt one question each from the sections A, B, C and D of the question paper and the entire section E.

UNIT-A

Types of Data: Basic concepts of frequency distribution, Measure of central values- Mean, median and mode, Measures of dispersion, range, mean deviation and standard deviation Correlation and Regression analysis

Probability: Theory, Classical definition of Probability, Basic terms ï Events, Trails, Mutually exclusive events, Favourable events, Exhaustive events etc, Bayeïs Theorems of probability, Addition Theorem, Multiplication Theorem, Conditional Probability & Coincidence Probabilities.

UNIT-B

Variance ï Coefficient of Variation, Moment, Skewness and kurtosis, binomial, distribution, Normal distribution, hyper geometric distribution, correlated measurements

Discriminating power ï Derivation, evaluation of evidence by discriminating powers Combination of independent systems, correlated attributes, Transfer of evidence ï likelihood ratio, probability of guilt correspondence probabilities, direction of transfer

UNIT-C

Tests of hypothesis ï Tests of significant of attributes, Z-test of significance and coefficient of correlation, Small sample test, T-test, Paired Test, Chi-square test, F test of equality of variance, Large sample test, Normal test.

UNIT-D

Computer and Internet basics: Introduction and need of Computers, Operating system and basics of Windows, User Interface, File management, File Transfer (ftp, WSftp), DOS, UNIX, Difference between presentation and document, introduction to Notepad, MS-Office word, MS-Excel, Power Point, Opening Documents and Closing documents, introduction to Paint and Photoshop. Computer Communication and Internet, Electronic mails, Communication on Internet, Surfing the Internet,

Suggested Books:
1) Elements of Biostatistics in Health Science- W. Daniell.
3) Fundamental of Statistics ñ D. N. Enhance.
4) Statistical Methods: S.P. Gupta. S. Chand Publication
5) Fundamentals of Biostatistics- Khan and Khanna, Ukaz Publication
6) Biostatistical analysis- Zerold and Jar.
7) C.S. French "Data Processing and Information Technology”, BPB
8) Publications 1998
10) Guy Hart-Davis "The ABCs of Microsoft Office 97 Professional edition",
TECHNIQUES IN FORENSIC SCIENCE

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of five sections A, B, C, D and E. Section A, B, C and D will have two questions from the respective sections of the syllabus carrying equal marks. Section E will consist of ten short answer type questions which will cover the entire syllabus uniformly. Short answer type questions (not more than five lines or fifty words) shall carry two marks each.

INSTRUCTIONS FOR THE CANDIDATE

Candidates are required to attempt one question each from the sections A, B, C and D of the question paper and the entire section E.

UNIT-A - (Introduction to Forensic Science)

Forensic Science Laboratories, Need and Scope of Forensic Science, Basic Principles of Forensic Science, Branches of Forensic science, and Future research perspectives in Forensic Science

UNIT- B – (Advanced Forensic Chemical Techniques)

Need of chemical analysis in Forensic investigations, Brief Introduction to Chromatographic techniques: TLC, HPTLC and GC techniques, with special reference to qualitative and quantitative analysis. Brief Introduction to Spectroscopic techniques: Overview and Forensic applications of UV-VIS and FTIR, Forensic Applications: Mass Spectrometry, AAS and X-ray techniques in forensic analysis

UNIT-C - (Advanced Forensic Biological Techniques)

Need of biological analysis on Forensic Science, Electrophoretic Techniques: Theory, General Principles and Forensic applications, DNA Fingerprinting Techniques: RT-PCR and RFLP, PCR, AFLP-PCR, Combined DNA Index System (CODIS).

UNIT-D – (Advanced Forensic Physical Techniques)

Role of Microscopy in Forensic Science Investigation: Light and Scanning Microscopes, Comparison Microscopy, Profiling and Automated Finger print Identification Systems (AFIS), Video spectral comparator (VSC), Introduction to NIBIN and IBIS, Advanced Computer and Cyber forensic tools, Forensic Psychological techniques and their legal prospectus, methods of Criminal

Suggested Books:
FS: P04        REVIEW WRITING AND PRESENTATION/SEMINAR

Marks: 100

Each student will submit a review report on any general topic of forensic science or area of interest in forensic science which will carry 50 marks and student will also give a presentation/seminar of the same which will also carry 50 marks.