



LALIT NARAYAN MITHILA UNIVERSITY

Kameshwaranagar, Darbhanga
(Examination Department)

350)

Date:- 08.10.2021

Meeting of the Committee notified Vide Memo No. 21178-84/21 dated-04-10-2021 is being held today, The following members are present.

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| 1. Dean, Faculty of Science, LNMU, Darbhanga | - Member |
| 2. Dean, Faculty of Humanities, LNMU, Darbhanga | - Member |
| 3. Dean, Faculty of Social science, LNMU, Darbhanga | - Member |
| 4. Dean, Faculty of Commerce, LNMU, Darbhanga | - Member |
| 5. Dr. Avni Ranjan Singh, Dept. of Economics, C. M. College, DBG | - Member |
| 6. Controller of Examination | - Convenor |

Agenda : To devise uniform standard/model for Ph.D Course work Examinations including syllabus in the light of Ph.D. Regulation notified by Governor's Secretariat BSU-512010-2684/GS(I) dated- 21.09.17 by BSU (Regulation) 05/2010-3230 GS (I) dated 18.12.2018.

Resolution: The Regulation was discussed and deliberated. The Committee unanimously resolved the following.

(1) The Ph.D. Course work examinations shall comprise two papers, each of 100 marks.

(2) Each paper shall be of 2 hours duration and shall consist of 3 parts:

PART-A

(a) Objective/ Multiple choice questions- (5 in numbers each carrying 2 marks).

PART-B.

(b) Short questions 5 in number of which 3 to be answered and each will carry 10 marks.

PART-C

(c) 3 Long answer questions to be set, out of which two are to be answered and each will carry 30 marks.

(3) Regarding Conduct of the syllabus for Ph.D. Course work, it was resolved-

(a) The First-Paper shall be common to all faculties and will consist of courses on Research Methodology, Quantitative Methods, Computer Applications and other Techniques/Methods.

A. Singh
8.10.2021

B. Jha
8.10.2021

A. S.
8.10.21
Controller of Examination
L.N.M.U., Darbhanga



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- (b) The second paper will include subject specific Research Methods/Techniques/Reviewing the Literature, Developing Bibliography and References.
- (4) The Committee further resolved that Dr. Avni Ranjan Singh, Head Dept. of Economics, C. M. College, Darbhanga be authorised to frame detailed contents of Paper I.
- (5) The University departments be authorised to develop the course contents of Paper-II of the subjects concerned.
- (6) It was also resolved that the uniform pattern of Ph.D. course work examination shall be effective from PAT-2021 onwards.
- (7) Each answer book of a particular subject would be evaluated by three examiners (one for Part-A, one for Part-B and one for Part-C). Another (4th examiner) would be for transcription and totalling of the marks awarded. All the four examiners will be paid equal remuneration per answer book at the rate fixed by the Examination Board.

Avni Singh
8.10.2021

Avni Singh
8.10.21

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Controller of Examination
L.N.M.U., Darbhanga

Paper-I

Research Methodology

Full Marks: 100

Duration of Examination: 2 Hours

Questions shall consist of 3 parts:

Part-A : Short Questions (06 in number of which 04 to be answered, each carrying 10 marks) = 40

Part-B : Long Answer Question (04 to be asked of which 02 to be answered, each carrying 30 marks) = 60

1. Introduction to Research: What is Research; Why is Research Conducted; Stages in Research; Changing Nature and Expanding Scope of Research; Why Research Methodology.
2. Introduction to Major Research Methods: Natural Observation; Historical Research; Ethnographic Research; Cross-Sectional Study; Longitudinal Study; Cohort Study; Case Study; Correlational Research; Action Research; Quantitative and Qualitative Research; theoretical research, applied research and empirical research; Experimental Research: Cause and Effect Relationships, Hypothesis in Experiments, Principles of Experimentation, Classification of Experiments, Experimental Design, Requirements of a Good Experiment; Reasoning in Research : Introduction to Logical Terms; Evidences; Inductive and Deductive Reasoning; Fallacious Reasoning; Formal and Informal Fallacies; Common Fallacies.
3. Research Design: Study designs in quantitative research; Study designs in qualitative research; Other commonly used philosophy-guided designs; Choice of Variables; Constructing hypotheses, Mechanisms and Design for Data Collection; Collection of Primary Data: Observation, Interview, questionnaire and schedule Sample Surveys and Designed Experiments, Estimation without Sampling, Methods of data collection in qualitative research; Collection of Secondary Data; Data Integration; Using Publications and the Library; Using Academic Databases: Search Engines, Citation Indexes and Citation Analysis, Government of India Initiatives for

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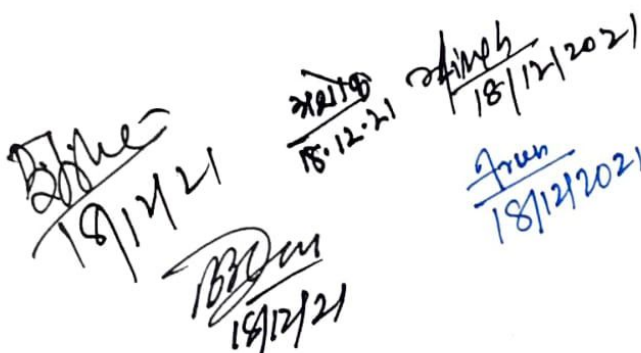
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A. S.
18/12/21
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Knowledge Management- INFLIBNET: e-ShodhSindhu, Shodhganga, ShodhGangotri, and N-List Projects.

4. Data analysis: Statistical analysis; Thematic analysis; Analysing narrative; Discourse analysis; Content analysis; Grounded Theory; Using computers in data analysis.
5. Ethics and Related Issues in Research: Concepts in Ethics in Research; Intellectual Property Rights; Scientific Values: Needed a Code of Conduct; Fraud and Misconduct in Science; Plagiarism: What is Plagiarism, Acknowledge Sources Appropriately, Paraphrasing, Direct and Indirect Quotations, Plagiarism Checking: ShodhShuddhi, UGC (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulations, 2018, LNMU Plagiarism Policy and Regulations-2018.
6. Writing a Research Proposal: Introduction; The research problem; Objectives of the study; Hypotheses to be tested; Study design; Measurement procedures; Analysis of data; Structure of the report; Problems and limitations.
7. The Structure of a Thesis: Thesis Vs Dissertation; Parts of a Thesis; Preliminary Pages of a Thesis: Title Pages, Certificate Pages, Acknowledgements, Table of Contents, List of Tables, List of Figures, Dedication; The Subject Proper: Introduction, Review of Literature, Materials and Methods, Results, Analysis/ Discussion, Summary/Conclusion, References, Appendixes; The Abstract; Formatting Requirements of a Thesis: Margins, Page Numbering, Design and Formatting of Chapters, Numbering the Sections, Lay-Out of Tables, Language and Style, Typeface and Fonts, Paper and Text Spacing; Thesis Editing.



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 Controller of Examination
 L.N.M.U., Darbhanga

Syllabus

Ph.D. COURSE WORK-PAPER-II SUBJECT- MATHEMATICS

UNIT-1 (PROGRAMMING)

Introduction to C, Introduction to Mat Lab.

UNIT-2 (WRITING SOFTWARE)

Latex, Letter writing, Research Paper writing, Bibliography style, Thesis writing.

UNIT-3 (MATHEMATICAL TECHNIQUE)

Introduction to Numerical Analysis, Numerical Analysis with Mat Lab, Numerical Methods.

UNIT-4 (ADVANCE ANALYSIS)

Abstract Integration, The concept of measurability, simple functions, Elementary properties of measures Arithmetic in $(0, \infty)$, Integration of positive functions, Integration of Complex functions.

UNIT-5 (ALGEBRIC TOPOLOGY)

The Fundamental group, Homotopy of paths, The Fundamental Theorem of Algebra, The Borsuk-Ulam Theorem, Deformation retracts and Homotopy types, Separation Theorem in the plane: The Jordan separation Theorem, Invariance of domain, The Jordan curve Theorem.

References:-

1. *Let Us C*
2. *Introduction of Mat Lab:-Delores M. Etter*
3. *Numerical Methods with Mat Lab:-Dana Zelenko*
4. *Learning latex:-Desmond Higham*
5. *Real and Complex Analysis:-Walter Rudin*
6. *Topology:-J.R. Munkers*
7. *Algebraic Topology-An Introduction:-W. S. Massey*

Hsh
02/11/21