

Dr. G.J.Sathisha
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Date :12-11-2025.

PhD Entrance Examination in Biochemistry

Instructions to Candidates

The Ph.D entrance examination for the candidates who have applied for Ph.D in Biochemistry of this University in response to the Notification has been scheduled on Friday the 14th November-2025. You are requested to go through the following Regulations of Kuvempu University.

Date of Entrance Test : 14-11-2025 (Friday)
Time : 02.00 pm to 05.00 pm
Venue : Department of M.Com,
Kuvempu University, Jnanasahyadri Campus,
Shankaraghatta-577 451.

1. Maximum Marks for Entrance Test : 90
2. Duration of Entrance Test : 3 hours.
3. Question Paper pattern :
Part A : 20 multiple choice questions each carrying one mark (20x1=20)
Part B : 05 questions to be answered out of 08 questions.
Each question carries 06 marks. (05x06=30)
Part C : 04 questions to be answered out of 06 question.
Each question carries 10 marks. (04x10=40)

Total Marks - 90

4. Syllabus for Entrance Test : Research Methodology and Biochemistry (as per the syllabus circulated before)
5. No TA/DA or accommodation will be provided by the University for attending the entrance examination.
6. Candidates who have not enclosed the P.G Degree Marks cards/Caste certificates (SC, ST, Cat-I, IIA, IIB, IIIA and IIIB) along with their application, should bring a copy of the same while appearing for the entrance examination.
7. The Candidates willing to appear for Entrance Test should collect their Hall Ticket from the Office of the Department of Biochemistry, Jnanasahyadri Campus, Shankaraghatta at 10 AM on 14-11-2025 (Friday).
8. The Candidates should bring a passport size photograph to affix to the Hall Ticket.

-Sd-
Chairman

KUVEMPU UNIVERSITY

Department of Chemistry

LIST OF THE STUDENTS APPLIED FOR
Ph.D. PROGRAMME IN CHEMISTRY - 2024-25

Sl No	Name	Reg No
01	Ashika K	25BIC001
02	Likhitha M	25BIC002
03	Nischitha D	25BIC003
04	Preethi Bavimane	25BIC004
05	Rashmi H C	25BIC005
06	Sheshadri M	25BIC006
07	Thanuja S	25BIC007

DEPARTMENT OF BIOCHEMISTRY

Ph.D (BIOCHEMISTRY) ENTRANCE EXAMINATION (September-2025)

A. EXAMINATION PATTERN

1. Maximum marks: 90
2. Nature of questions: Objective multiple choice and descriptive type questions
3. Syllabus for entrance test: Research Methodology and Biochemistry subjects
4. Number of Questions: 20 questions each carrying one mark (Part A), Six question carrying five marks each (Part B) and four questions carrying 10 marks each (Part C).
5. Duration of entrance exam: 3 h.
6. Date of entrance test: **TBL**

B. SYLLABUS

PART- I: BIOCHEMISTRY

Organization of life: Importance of water. Cell structure and organelles.

Structure and function of biomolecules: Amino acids, Carbohydrates, Lipids, Proteins and Nucleic acids.

Bio-analytical techniques: Biochemical separation techniques and characterization: ion exchange, size exclusion and affinity chromatography, electrophoresis, UV-visible, fluorescence and Mass spectrometry.

Protein structure, folding and function: Myoglobin, Hemoglobin, Lysozyme, Ribonuclease A, Carboxypeptidase and Chymotrypsin.

Enzyme kinetics: including its regulation and inhibition, Vitamins and Coenzymes.

Metabolism and bioenergetics: Generation and utilization of ATP. Metabolic pathways and their regulation: glycolysis, TCA cycle, pentose phosphate pathway, oxidative phosphorylation, gluconeogenesis, glycogen and fatty acid metabolism. Metabolism of Nitrogen containing compounds: nitrogen fixation, amino acids and nucleotides. Photosynthesis: the Calvin cycle.

Biological membranes: Transport across membranes. Signal transduction; hormones and neurotransmitters.

Molecular Biology: DNA replication, transcription and translation. Biochemical regulation of gene expression. Recombinant DNA technology and applications: PCR, site directed mutagenesis and DNAmicroarray.

Immune system: Active and passive immunity. Complement system. Antibody structure, function and diversity. Cells of the immune system: T, B and macrophages. T and B cell activation. Major histocompatibility complex. T cell receptor. Immunological techniques: Immunodiffusion, immunoelectrophoresis, RIA and ELISA.

PART- II: RESEARCH METHODOLOGY

Introduction: Scope and significance of research methodology, types of research, Academic, Industrial, clinical, social sciences. Basic research, applied research,

Review of literature, identifying the gaps and formulating the hypothesis. Selecting research topics

Research material: Use of literature and literature sources. Design of experiments, Factorial experiments, randomization, interaction among factors, Types of studies-Cohort studies, double blind, placebo control, cross over and double dummy, Overview of some studies (e.g., UKPDS, CUPS, Farmington). Clinical studies, Toxicity studies, Good Laboratory practices, Handling of Rodents and non-rodents in laboratory experiments, Safe disposal of used and rejected samples and materials.

Collection of data: Relevance of sample size. Sources, methods-questionnaires, records, archives, scaling-Likert and Gutman. Validation and standardization of the methods, modification and experimental design. Collection, analysis, statistical inference, presentation of the data.

Clinical Research: Introduction to Good Clinical Practices, Clinical Trial Development: Protocol Design and Development; Case Report Form Design and Development; Principles of Data Management; Clinical Trial Management: Maintaining and Managing Essential Documents; Recording and Reporting Non-Serious and Serious Adverse Events.