



**DEPARTMENT OF LIFE SCIENCE
UNIVERSITY OF CALICUT**

**SYLLABUS
FOR
DOCTOR OF PHILOSOPHY IN PHYSIOLOGY**

PAPER I: RESEARCH METHODOLOGY

1. Science and its characteristics: Testability, Repeatability, falsifiability, hypotheses; theories and laws in science; Ad hoc- hypothesis, axillary hypothesis, observation, evidence and proofs.
2. Design of an experiment; sample, procedure of sampling, sample size, experimentation, observation, data collection, interpretation and deduction. Planning of experiments, Experiment Design, selection of controls, observational requirements, instrumental requirements, documentation of experiments.
3. Nature and types of data typical examples. Data acquisition, treatment of data, data interpretation, Significance of statistical tools in data interpretation, errors and inaccuracies. Data presentation: graphs, tables, histograms and pi diagrams. Statistical testing of hypothesis. Biased observations, influence of observations, using and acknowledging observations by others.

Use of computer packages in storing, analyzing and managing data.

4. Writing a research report, scientific writing, format for scientific reporting, tables, text, foot notes, illustrations, and paginations, references, index, Applications of computer packages in bibliographic management.

5. Preparation of a research project: Formulating research idea, defining problems and literature search, finalizing the outline of writing.

MODEL QUESTION PAPER PQE 2021-22

**Ph.D Physiology
PSGPHDC01: RESEARCH METHODOLOGY**

TIME: 3 hr

TOTAL MARKS: 70

PART A

Answer any 8 question out of 10 questions. Each question carries 5 marks.

(8x5=40 marks)

- 1) Describe different theories in science.
- 2) Discuss the various tools and techniques of data collection used in research..
- 3) Describe various steps involved in designing an experiment.
- 4) What are the features of a good research design?
- 5) Describe the use of computer packages in storing, analyzing and managing data.
- 6) Write note on different types of scientific reports.
- 7) Define the term "Review of Literature", and what is objectives and significance of review of literature?
- 8) What are the factors to be considered while writing a thesis?
- 9) Describe the nature and types of data with examples.
- 10) Define the term "Hypothesis" and Enumerate and characteristics of Hypothesis.

PART B

Answer any three out of five questions. Each question carries 10 marks.

(3x10=30 marks)

- 11) Describe the preparation of a research project.
- 12) Explain research problem and the classification of research.
- 13) How will you make an oral presentation effective?
- 14) Explain the induction and deduction in research reason.