



**VINAYAKA MISSION'S RESEARCH FOUNDATION, SALEM**

**(Deemed to be University under Section 3 of the UGC Act, 1956)**

**Pre – Ph.D. Written Examination – January – 2023**

**Biochemistry**

**Paper I: Research Methodology**

Time: 2 Hours

Marks: 50

**PART –A**

**(5\*2M= 10M)**

**Write Brief notes about the following**

Answer all questions

All questions carry equal marks

1. What is meant by research problems?
2. Why we need to determine pH in Biological Samples?
3. Define Genome data base?
4. Shortly describes on “Biostatistics”
5. What is meant by short Communication Research articles? How it is differing from the original articles?

**PART – B**

**(5\*4M=20M)**

**Write Short answers to the following**

Answer all questions choosing either a or b

All questions carry equal marks

1. a. What do you mean by “Objectives of Research” .Given a suitable Example?  
**Or**  
b. Why we write the research objectives and what is the significance of the research synopsis?
2. a. Write short notes on Atomic Force Microscope (AFM)?  
**Or**  
b. Write short notes on SEM and its application in research lab?
3. a. Shortly describe DNA sequence data bases and its application?  
**Or**  
b. Shortly describe few bioinformatics data base software?



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4. a. Shortly describe the Chi-Square test and its applications?

**Or**

b. Write down the SPSS software and its uses?

5. a. What is meant by review article and how it is helpful to the scientific society?

**Or**

b. Shortly describe the Institutional Animal Ethical Committee roles and applications.

**PART – C**

**(2\*10M=20M)**

Answer any two essay type questions

All questions carry equal marks

1. What is meant by Bio Science Research? Discuss the application in various functional areas of Biochemistry?
2. Discuss the various fields applications of X-ray crystallography?
3. What is the main role of a bioinformatician in present biological research and development area?
4. Briefly explain electrophoresis and its application with suitable diagram.
5. If you are a referee for an international scientific journal, list out the major principles you will follow and methods you will adopt while reviewing.

