

M.Phil (Biochemistry) Examination

Paper-I : Research Methodology

May-2017

Time : 3 Hours]

[Max. Marks : 70

Instructions: All questions carry equal marks
 All questions are compulsory
 Illustrate your answer with neat diagram whenever necessary

Q1 [14]

(A) Explain major components of a research proposal

OR

(A) Define hypothesis testing, cite examples

(B) Define "research problem" and explain salient features of good research study design

OR

(B) Describe the objectives of research and discuss its significance

Q2 [14]

(A) Define the principle of Ultracentrifugation and its research applications

OR

(A) Explain the principle of Mass spectrometry

(B) Write a brief note on agarose gel electrophoresis and its clinical applications

OR

(B) Describe Ion exchange chromatography and its types

Q3 [14]

(A) Explain various types of PCR with its clinical applications

OR

(A) Describe Positron Emission Tomography and its clinical application

(B) Define principle of western blotting technique and its applications

OR

(B) Explain in brief process of identification and sorting of cells using Flow cytometer

Q4 Answer any two [14]

(A) Describe major genomic and proteomic databases from NCBI

(B) Define "t" test and distinguish between paired and unpaired "t" test

(C) Distinguish variance and co-variance

(D) Explain various measurement of central tendency methods

Q5 Answer any two [14]

(A) Define standard deviation and standard error of mean and their significance

(B) Define principle of electron microscopy and its types with applications

(C) Explain 2D PAGE and its application in research

(D) Distinguish phase contrast microscopy and DIC