

M.Sc. Examination, 2019
Semester-II
Zoology
Paper – MZCT-202
(Theoretical Basis of Methods in Biology)

Time: 3 Hours

Full Marks: 40

Questions are of value as indicated in the margin.

Answer **any four** questions.

1. (a) State the Beer-Lambert's law and its application in quantitative biochemistry. Comment on its limitations.
(b) Discuss the working principle of UV-VIS spectrophotometer. (5+1)+4=10
 2. (a) Write in briefly the principle and application of fluorescence microscopy.
(b) Give a brief account of the procedure of biological specimen preparation for SEM study. 5+5=10
 3. (a) Name the two most important macromolecular interactions involving ELISA. How specificity and sensitivity are important for this assay?
(b) Give an account of ELISA technique you have studied. How signal amplification is achieved in this colorimetric assay? (2+2)+(4+2)=10
 4. How applications of analytical and preparative centrifugation are different? How applied centrifugal field (G) is related to RCF (Relative Centrifugal Field)? Give an account of differential centrifugation for separation of sub-cellular organelles. 2+4+4=10
 5. (a) Give an account of the chemical components required for setting up a polymerization reaction in vertical PAGE and also indicate their functions in brief.
(b) "Native PAGE electrophoresis is not suitable for determination of protein molecular mass" – explain. 5+5=10
 6. Write short notes on **any two** of the following: 5×2=10
 - (a) Partition/distribution coefficient (K_d)
 - (b) Components required for performing RIA
 - (c) Anion Exchanger
 - (d) Density-gradient centrifugation
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