



**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

**B.Sc. DEGREE EXAMINATION – ADVANCED ZOOLOGY AND BIOTECHNOLOGY**

**FIFTH SEMESTER – NOVEMBER 2019**

**16/17UZO5ES03 – BIO INSTRUMENTATION SCIENCE**

Date: 06-11-2019

Dept. No.

Max. : 100 Marks

Time: 09:00-12:00

**Part-A**

**Answer all the questions**

**(10×2=20)**

1. What is Beer's-Lambert's law?
2. Comment on cryoprotectant.
3. Define: retention time and retention volume.
4. Expand : SEM, TEM, RPM & RCF
5. Mention the different types of centrifuge rotors.
6. Write a note on safety measures to be followed while handling laboratory animals?
7. Explain how laser light is produced.
8. Mention the types of immunofluorescence and its applications.
9. Describe the design and working mechanism of cantilever-based biosensors.
10. Draw the laboratory symbols used for depicting (i) Radioactivity and ( ii) Bio-hazard.

**Part-B**

**Answer any FOUR questions**

**(4×10=40)**

11. Draw and explain affinity chromatography.
12. What is sedimentation coefficient? Explain analytical ultracentrifugation.
13. Write notes on GLC.
14. Explain how blood pressure is measured.
15. Give an account of DNA-based biosensors.
16. Write a note on the different types of laminar flow hoods.

**Part-C**

**Answer any TWO questions**

**(2×20=40)**

17. Explain the principle, construction and significance of light microscope.
18. Discuss the differential centrifugation and add a note on centrifuge rotors.
19. Write detailed notes on cardiac pacemakers and X-ray fluoroscopy.
20. Explain the following:  
(i) Southern blotting      (ii) Polymerase Chain Reaction

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