



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

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

**FIFTH SEMESTER – APRIL 2016**

**AZ 5402 - INSTRUMENTATION AND CHEMICAL TECHNIQUES**

Date: 29-04-2016  
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

**Part-A**

**Answer all the questions**

**(10×2=20 Marks)**

1. Name two chemical agents of sterilization.
2. Illustrate the laboratory symbols used for depicting radiation hazard and biohazard.
3. Draw and label the parts of a generalized biomedical instrumentation system.
4. Describe the alcohol biosensors used in cars.
5. What is meant by ESR? How is it measured?
6. Enlist the medical uses of radioactive isotopes.
7. State the Beer-Lambert's law and explain how the colorimetric absorbance of a compound is related to its concentration.
8. What are pH indicators? Give two examples.
9. Why are protein samples treated with sodium dodecyl sulphate before polyacrylamide gel electrophoresis?
10. Differentiate between anion and cation exchangers giving one example for each.

**Part-B**

**Answer any FOUR questions**

**(4×10=40 Marks)**

11. Explain the working and use of an autoclave.
12. Write a note on the regulation of medical devices.
13. Discuss the working of a flow cytometer.
14. Give an account of the principle and working mechanism of the Geiger Muller counter.
15. What are the different types of radiation? Describe the biological impacts of radiation.
16. Write a note on gel filtration chromatography.

**Part-C**

**Answer any TWO questions**

**(2×20=40 Marks)**

17. Describe the principle and procedure for agarose gel electrophoresis of DNA.
18. Describe the polymerase chain reaction and mention its applications.
19. Discuss the techniques of nuclear magnetic resonance and ultrasound imaging.
20. Explain the methods of measurement of blood pressure and blood flow.

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