

Library

UNIVERSITY OF JAFFNA, SRI LANKA  
BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCES  
FIRST YEAR SECOND SEMESTER EXAMINATION- JANUARY 2016  
MLSIA1264 INSTRUMENTAL ANALYSIS



Date:01.02.2016

Time: 2 Hours

**ANSWER ALL SIX QUESTIONS**

**ANSWER PART A AND PART B IN SEPARATE ANSWER BOOKS**

**PART A**

1.
  - 1.1 Briefly describe the working principle of an autoclave. (20 Marks)
  - 1.2 List the laboratory uses of an autoclave. (30 Marks)
  - 1.3 Explain the purpose of the following components used in an autoclave.
    - 1.3.1 Pressure gauge
    - 1.3.2 Drain valve
    - 1.3.3 Distilled water
    - 1.3.4 Strong enclosure (50 Marks)
2.
  - 2.1
    - 2.1.1 What is meant by “sensors”? (10 Marks)
    - 2.1.2 Give two examples for sensors used in laboratory equipment and their uses. (30 Marks)
  - 2.2.
    - 2.2.1 Discuss the working principle of a magnetic stirrer. (45 Marks)
    - 2.2.2 State the uses of a magnetic stirrer in a laboratory. (15 Marks)
3.
  - 3.1
    - 3.1.1 Briefly describe the working principle of a pH meter. (30 Marks)
    - 3.1.2 Explain how a pH meter is calibrated in a laboratory. (40 Marks)
  - 3.2. Briefly describe the steps involved in separation of serum from a blood sample by using a centrifuge. (30 Marks)

## **PART B**

- 4.
- 4.1 Briefly describe the principle of fluorescence microscopy. (25 marks)
- 4.2 List the parts of a light microscope and mention the functions of each part. (40 marks)
- 4.3 Briefly describe the working principle and the uses of class II biosafety cabinet. (35 marks)
- 5.
- 5.1. Briefly explain the working principle of the following:
- 5.1.1. Flame Photometry (25 Marks)
- 5.1.2. Mass spectrometry (25 Marks)
- 5.2. Give five applications of each of the equipment mentioned in 5.1. (40 Marks)
- 5.3. List the main components of typical Fluorescence Spectrometer. (10 Marks)
6. Write notes on the following
- 6.1 Cryostat (40 marks)
- 6.2 Class III Biological safety cabinet (30 marks)
- 6.3 Automated tissue processor (30 marks)