



UNIVERSITY OF JAFFNA, SRI LANKA
FACULTY OF ALLIED HEALTH SCIENCES
FIRST YEAR SECOND SEMESTER EXAMINATION IN BScHons (MLS) – 2021
MLSMT 1213 MEDICAL LABORATORY TECHNOLOGY II

Date: 20.06.2023

Time: 2 Hours

Answer all Six Questions.

1. 1.1 Define the followings,
 - 1.1.1. Fluorescence. (15 Marks)
 - 1.1.2. Phosphorescence. (15 Marks)
 - 1.1.3. Internal conversion. (15 Marks)
- 1.2 Explain the working principle of infrared spectroscopy. (25 Marks)
- 1.3 Give the applications of infrared spectroscopy. (30 marks)

2. 2.1 Describe the working principle of,
 - 2.1.1 Atomic emission spectroscopy. (20 Marks)
 - 2.1.2 UV/Visible spectroscopy. (20 Marks)
 - 2.1.3 Turbidimetry. (20 Marks)
- 2.2 Explain the steps of measuring serum electrolytes (Na^+ and K^+) in a blood sample of a patient using a Flame photometer. (40 Marks)

3. 3.1 Outline the principle of Thin Layer Chromatography. (20 Marks)
- 3.2 Explain how a Thin Layer Chromatography would be performed to identify an amino acid impurity presented in a purified drug sample. (60 Marks)
- 3.3 Give the advantages of performing Thin Layer Chromatography over Paper Chromatography. (20 Marks)

4. 4.1 Give the basic principle of,
- 4.1.1. Ion exchange chromatography. (25 Marks)
 - 4.1.2. Hydrophobic interaction chromatography. (25 Marks)
- 4.2 Explain how hydrophobic interaction chromatography is carried out for the purification of proteins. (50 Marks)
5. 5.1 Give the principle of electrophoresis. (20 Marks)
- 5.2 Briefly explain the usage of the following in a gel electrophoresis
- 5.2.1. Bromophenol blue (20 Marks)
 - 5.2.2. Coomassie brilliant blue (20 Marks)
 - 5.2.3. Ethidium bromide (20 Marks)
- 5.3 State the limitations of agarose gel electrophoresis. (20 Marks)
6. Write short notes on
- 6.1 pH electrode. (25 Marks)
 - 6.2 Limitation of Clark-style amperometric O₂ sensor. (25 Marks)
 - 6.3 Pneumatic tube systems. (25 Marks)
 - 6.4 Carryover in automatic analyser. (25 Marks)