BACHELOR OF MEDICAL LABORATORY SCIENCE HONOURS

MLU3248 -ANALYTICAL TECHNIQUES FOR MEDICAL LABORATORY SCIENCE

FINAL EXAMINATION   DURATION: THREE HOURS

DATE: 26ᵗʰ MARCH 2019   TIME: 09.30 AM – 12.30 PM

Part B: Structured Essay Questions (40 marks)

Q 1

1.1 Using a labelled diagram give essential parts of a flame photometer.   (2 marks)

1.2 Explain the functions of basic components of a flame photometer.   (3 marks)

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1.3 Why Lithium internal standard is used in flame photometry?   (3 marks)

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1.4 What is the meaning of atomic excitation? (2 marks)

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(Total – 10 marks)

Q 2

2.1 Draw a diagram to show the components inside a spectrophotometer. (2 marks)

2.2 Explain the functions of each component briefly. (3 marks)

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2.3 Write a short note regarding the care and maintenance of the component used to feed the sample to the instrument. (3 marks)

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2.4 What are the differences between photometer and spectrophotometer? (2 marks)

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(Total – 10 marks)

Q 3

3.1 What are the commonly used sorbents in thin layer chromatography?   (3 marks)

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3.2 Draw diagram to show the parts of paper chromatography set up.   (3 marks)

3.3 What is the use of Ninhydrin reaction?   (2 marks)

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3.4 What is ion exchange chromatography?   (2 marks)

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(Total – 10 marks)

Q 4

4.1 Explain Lambert's law using a diagram   (2 marks)

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4.2 Derive equation for Lambert's law.   (2 marks)

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4.3 Apply combined Beer – Lambert's law to known and unknown concentrations of solutions. State how the concentration of unknown solution is calculated. (3 marks)

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4.4 what do you mean by the 'factor' in the calculation of the result of photometric measurements? (3 marks)

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(Total – 10 marks)

Part C: Essay type questions (30 marks)

Q 1.   Explain the principle of latex agglutination technique using a labeled diagram.

(15 marks)

Q 2.   Explain the theory of protein electrophoresis   (15 marks)