THE OPEN UNIVERSITY OF SRI LANKA
B.Sc. Degree Programme / Stand alone courses in Chemistry
Level 5 – C.A. TEST — 2009 / 2010

CHU 3129/CHE 5129 – INSTRUMENTAL METHODS IN CHEMICAL ANALYSIS

Duration: One and half hours
Date and time: 22nd February, 2010 from 4.00 p.m. to 5.30 p.m.

Reg. No.....

Question number	marks
1	
2	
3	
4	
Total	

Instructions to students

Answer all questions in the spaces given. Additional sheets will not be marked.

1. Comment briefly on the following statements.

   (a) Fluorescent molecules often absorb UV light and emit visible light.

   (b) It is possible to get information from a Raman spectrum that cannot get from IR spectrum.

(20 marks)

2. The transmittance of a 3.16×10^{-3} M $KMnO_4$ solution was 2.88×10^{-5} % in a 1.000 cm cell at 555 nm. (all the answers should be given to the correct number of significant figures.)

(a) What is the absorbance of this solution?

(b) What is the molar absorptivity coefficient of this solution at 555 nm?

(c) What would be the absorbance if the concentration of this solution was decreased by a factor of 4 ?

(30 marks)

3. (a) Draw and label a simple diagram of a Spectrofluorometer.

(b) Give two differences in the construction of instruments of Spectrofluorometer and Atomic Absorption Spectrophotometer.

(20 marks)

4. (a) Write a short account on chemical ionization in mass spectroscopy.

(b) Draw a photometric titration curve of a titration where the analyte absorb light but neither the titrant nor the products absorb light.

(c) Give three advantages of ICP Emission Spectroscopy over other emission methods.

(30 marks)

Name .....

Address .....

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