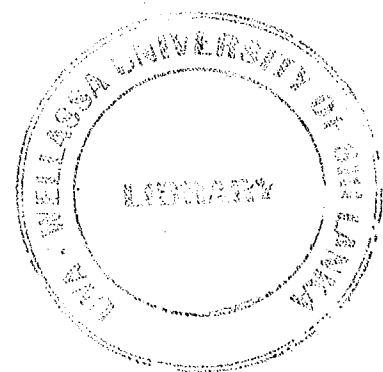


Uva Wellassa University of Sri Lanka
Faculty of Science and Technology
Science and Technology Degree Program
300 Level First Semester Examination – May/July 2017
SCT 342-2 Material Characterization Techniques - I



PART B

1. a). What do you mean by "excited state" of an electron?
- b). What is the total spin number when two electrons in excited singlet state and singlet ground state?
- c). What are the two types of forbidden electron transitions in spectroscopy?
- d). What do you mean by $\sigma \rightarrow \sigma^*$ transition?
- e). $\sigma \rightarrow \sigma^*$ and $\pi \rightarrow \pi^*$ transitions are allowed in spectroscopy. Which transition needs to absorb more energy?
- f). What do you mean by the term "Chromophores"?
- g). Write four examples for chromophores.
- h). What do you mean by the term "Auxochromes"?
- i). Write four examples for auxochromes.
- j). What will happen when an auxochrome is attached to chromophore?

(25 marks)

2. FTIR spectrum of gas phase formaldehyde is given below. Identify the peaks indicated by frequency (25 marks)

