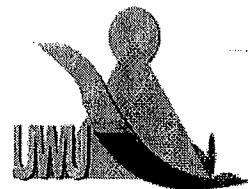


Uva Wellassa University, Sri Lanka  
End Semester Examination – March 2012  
SCT 444-1 Glass Technology



Time: One (01) hour

Total 04 questions  
Answer all questions

- 01) i. There are *five different definitions* existed for glass. State any two of these definitions.
- ii. "One of the main distinctions between crystalline and noncrystalline materials lies in the *dependence of their specific volume on temperature*". Make a rough sketch to illustrate this dependence.
- iii. What does it mean by *short-range order (SRO)* in the glass technology? (25 marks)
- 02) i. A set of rules which is usually satisfied when an oxide forms a glass, was proposed by W.H. Zachariasen in 1932 based on *two main considerations*. Briefly explain these two main considerations.
- ii. Giving two examples for each group, describe the cation groups: *network formers*, *network modifiers* and *intermediates* in glass manufacturing technology.
- iii. With the help of a schematic representation, explain the *Si-O-Si bridge-rupture mechanism* (25 Marks)
- 03) i. What is the typical composition of commercial glass?
- ii. Make a list of the *minor ingredient types* used in glass manufacturing. What is the most common chemical used for the *main minor ingredient* and explain the chemical reaction of this main minor ingredient.
- iii. What does the term *decolorization* mean in glass manufacturing? Briefly describe how to obtain a decolorize flint glass. (25 Marks)
- 04) i. What is the optimum temperature of glass required to start bottle manufacturing? Explain why bottles cannot be produced at temperatures higher or lower than this.
- ii. Define the term *Parison* in glass manufacturing? Describe the nature of it.
- iii. Write down the main steps of *Blow and Blow production process* used in manufacturing of glass containers. (25 Marks)