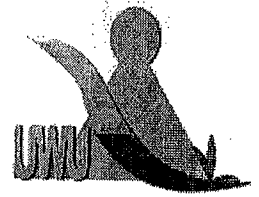




Uva Wellassa University, Sri Lanka  
End Semester Examination – March 2011  
SCT 444-1 Glass Technology



Time: One (01) hour

Total 04 questions

Answer all questions

- 01) i. What is the *ASTM (American Society for Testing and Materials)* definition of glass?  
ii. Show how to determine the *fictive glass transition temperature* of a glass from its specific volume versus temperature plot.  
iii. Define the terms: *melting point, working point* and *softening point* of a glass. (25 marks)

- 02) i. State the four rules formulated by Zachariasen in 1932 by summarizing his findings on formation of glass.  
ii. What are the three main factors on which the role of the cations depend on in glass formation?  
iii. Explain with a rough sketch how the network modifiers in glass cause nonbridging O ions. (25 Marks)

- 03) i. What are the local minerals used in Sri Lankan glass bottle manufacturing industry?  
ii. Name the most common fluxing agent (modifier) used in glass manufacturing and explain its basic chemical reaction.  
iii. What is the main minor ingredient type and the most common chemical used for it in glass technology? Explain the chemical reaction of this main minor ingredient addition. (25 Marks)

- 04) i. Define the terms *gob* and *parison* used in glass manufacturing technology.  
ii. Explain why there is a *specific optimum starting temperature* for manufacturing glass bottles.  
iii. Stating all the main steps, explain the *Blow and Blow production process* used in manufacturing of glass containers. (25 Marks)