



EASETRN UNIVERSITY, SRI LANKA

SECOND EXAMINATION IN SCIENCE – REPEAT

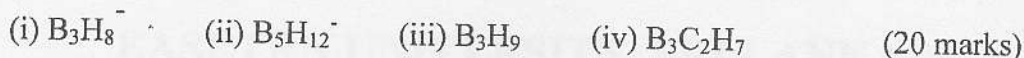
SECOND SEMESTER 2004/2005 (OCTOBER 2006)

CH 205 BORON CHEMISTRY AND SILICATES

Time allowed: **ONE Hour**

Candidate must NOT start writing their answers until told to do so

1. (a) Place each of the following molecules/ions in the correct structural class



(b) Derive a possible structure for the following molecules/ions and draw the diagram by indicating all the bonds



(c) (i) Derive the different 'styx' numbers possible for B_4H_{10} (24 marks)

(ii) Choose the most likely 'styx' number obtained in c (i) above and draw the structure

(16 marks)

2. (a) Show by means of equations how the following transformations could be effected via organometallic intermediates



(b) Write balanced equations to show the reactions of $(BNHCl)_3$ with $MeMgBr$, H_2O and $LiAlH_4$. (10 marks)

(c) Silicate minerals are classified according to the linkage pattern of SiO_4^{4-} tetrahedral units. **List the types** of mineral by giving

- (i) general formula
 (ii) schematic diagrams (description is not necessary)
 (iii) **only one** example for each (50 marks)

End