



Eastern University, Sri Lanka

External Degree

Second Year Second Semester Examination in Science

2004/2005 (January/ March 2011)

EXTCH 205 Boron Chemistry and Silicates

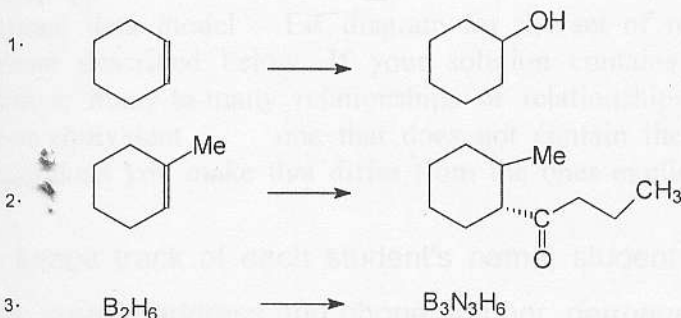
(Proper & Repeat)

Answer all questions

Time: one Hour

- 1) a) State the Wade's rule. (20 marks)
- b) Discuss the bonding and structure of the following boron compounds using Wade's rule. (40 marks)
- i) B_4H_{10} ii) B_5H_{11}
- c) Derive the possible "styx" number for B_4H_{10} and draw the most possible schematic diagram corresponding "styx" number. (20 marks)
- d) Discuss the bonding and structure of the carborane having molecular formula $C_2B_4H_6$ using Wade's rule. (20 marks)

2) a) Show how the following transformations could be effected via organometallic intermediates.



(45 marks)

(b) Classify the structural types of silicates by giving the following

- i) General formula
ii) Schematic diagram (description is not necessary)
iii) One example for each.

(55 marks)