

EASTERN UNIVERSITY, SRI LANKA

THIRD YEAR SECOND SEMESTER EXAMINATION IN SCIENCE

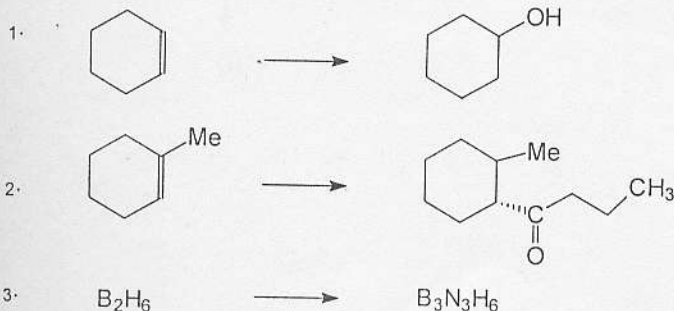
2008/2009 (Sept./ Nov.2010)

CH 205 BORON CHEMISTRY AND SILICATES

Answer all questions

Time: 01 hour

- 1) (a) What is Wade's rule? (20 marks)
- (b) Discuss the bonding and structure of the following boron compounds using Wade's rule.
- (i)  $B_4H_{10}$  (ii)  $B_4H_9^-$  (40 marks)
- (c) Write short account on Bonding in Boranes. (20 marks)
- (d) Derive the possible "styx" number for  $B_4H_{10}$  and draw the most possible schematic diagram corresponding "styx" number. (10 marks)
- (e) Discuss the nature of bonding and structure of the carborane having molecular formula  $C_2B_3H_5$  using Wade's rule. (10 marks)
- 2) (a) Show how the following transformations could be effected via organometallic intermediates.



(45 marks)

Turn over

(b) Briefly explain the type of silicates with general formula, schematic diagram and at least one example for each type.

(55 marks)

End of Paper