INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR

Date 13.09.2006 17.00 *Time:* 30 min. *Full Marks* **20** *No. of Students:* **58**
Autumn Semester:, 2006 Department: Computer Science and Engineering Sub. No: CS 43001
3^{rd} Yr. B. Tech.(Hons.) Sub. Name: Compiler Construction

Name : − Roll No:− − − − − − − − − − − − − − − −

Instructions : Answer **all** the questions. Answer only what is asked. Do rough work in separate sheet of paper.

1. Given the grammar S' → S
   S → aABe
   A → Abc
   A → b
   B → d
   Deduce the sets of items. (4)

2. Construct the NFA, using Thomson construction method, for the regular expression a(a|b)*ab. (5)

3. Consider the grammar
   $E \rightarrow E + E \mid E * E \mid id$
   develop the operator precedence table and show the steps subsequently executed to parse the string id * id + id. (5)

4. Given the grammar
   $E \rightarrow E + T \mid T$
   $T \rightarrow T * F \mid F$
   $F \rightarrow (E) \mid id$

   A. Eliminate left recursion from the grammar (2)

   B. Derive optimized set of transition diagrams to implement recursive descent parsing for the above grammar. (4)