Indian Institute of Information Technology, Allahabad

Department of Information Technology

Theory of Computation

Marks: 10

Practical Questions: Write a C or C++ program for the following :

1) Consider the grammar

   S→SbS | a

   This grammar is ambiguous; show in particular that the string abababa has two
   a) LMD
   b) RMD
   c) Parse tree

   (Hint: Given Grammar is the input and a) b) & c) are outputs)

2) For the following code construct a CFG:

   If (condition) {
   If (condition) Statement;
   Else Statement;
   …..
   If (condition) Statement;
   Else Statement;
   …
   }
   a) Read the above if else structure from a file (input)
   b) Construct a CFG for any sample structure (output)

3) Find context-free grammars for the languages
   $L = \{a^n b^m c^k : k = |n - m|\}$(with $n \geq 0, m \geq 0, k \geq 0$).

   a) Input should the language L.
   b) Output should be the set of strings and CGF.

***** ALL the Best *****