Indian Institute of Engineering Science and Technology, Shibpur

B.Tech (Computer Science and Technology)

7th semester Mid Term Examinations, December 2020

Compiler Design (CS 701)

Full Marks: 30 Time: 45 Minutes

Answer all questions.

1. Given a grammar with the following production rules:
   S→ E#
   E→T| E+T
   T→ P|T*P
   P→ F|F^P
   F→ i | (E)
   Where V_T = {+,#,*,^, i, (,)} V_N= { S,E, T,P, F}
   (a) Compute FIRST and FOLLOW sets to all non-terminal symbols. 5
   (b) Construct LR(0) m/c for the grammar. 5
   (c) Construct SLR(1) parsing table for the grammar. 5

2. (a) Define lexical analyzer. What are the actions taken during lexical analysis phase? 1+2
   (b) What is lexical lookahead? What is its importance in design of a lexical analyzer. 1+1

3. (a) Define synthesized attribute and inherited attribute with examples using grammar rules and annotated parse tree. 5
   (b) Define S-attributed definitions and L-attributed definitions. State the rule related to attribute dependencies. 3+2