Tribhuvan University

Institute of Science and Technology

2068

Bachelor Level/ Third Year/ Six Semester/ Science — Full Marks:60

Computer Science and Information Technology –(Csc.352) — Pass Marks:24

(Compiler Design and Construction) — Time: 3 hours.

Candidates are required to give their answers in their own words as for as practicable.

The figures in the margin indicate full marks.

Attempt all questions.

1. Explain the phases of a compiler with block diagram. (6)
2. Define token, pattern and lexeme with suitable example. How input buffering can be implemented for scanner, explain. (6)
3. Give a regular expression (0+1) * 011, construct a DFA equivalent to this regular expression computing follow pos (). (6)
4. Explain the role of a parser. Write an algorithm for non-recursive predictive pursing.(6)
5. Consider the grammar

   $E \rightarrow E+T \mid T$

   $T \rightarrow T * F \mid F$

   $F \rightarrow (E) \mid id$

   Compute the complete LR(0) collection of item set from above grammar. (6)

6. Show that the following grammar is not a LL(1) grammar

   $S \rightarrow c\ Ad$, $A \rightarrow Ab / a$ (6)

7. What do you mean by Kernel and non-kernel items? Compute the Kernal items for LR(0) for the following grammar.

   $S \rightarrow CC$

   $C \rightarrow bC / d$ (6)

8. What do you mean by S-attributed definitions and how they are valuated? Explain with example. (6)

9. What do you mean by three-code representation? Explain with example. (6)
10. How next-use information is useful in code-generation? Explain the steps involved on computing next-use information. (6)