Tribhuvan University
Institute of Science and Technology
2073

Bachelor Level/ Third Year/ Fifth 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. (10×6=60)

1. Draw block diagram to represent different phases of compiler. Explain different steps in analysis phase.
2. Convert the following RE to DFA directly. (a+b)*ab
3. Find first and follow all of the non terminals in the following grammar.

$$A \rightarrow TEE \rightarrow +TE|\varepsilon T \rightarrow XY \;\; Y \rightarrow^{*} XY|\epsilon X \rightarrow (A)|a$$

4. Differentiate between LR(0) and LR(1) algorithm.
5. Construct LR(1) parse table for

   X -> pX | q S -> XX
6. How can syntax directed definition be used in type checking?
7. What is the theme of code optimization? Why is code optimization important in compiler?
8. Explain about peephole optimization with example.
9. What are the advantages of intermediate code? Describe various representation of intermediate code.
10. Discuss the importance of symbol table in compiler. How is it manipulated in the different phases of compilation?