Tribhuvan University
Institute of Science and Technology
2082
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Bachelor Level / Third Year/ Sixth Semester/ Science — Full Marks: 60
Computer Science and Information Technology (CSC365) — Pass Marks: 24
(Compiler Design and Construction) — Time: 3 hours.
(OLD COURSE)

Candidates are required to give their answers in their own words as for as practicable.
All figures in the margin indicate full marks.

Section A

Long Answer Questions.
Attempt any TWO questions. **[2×10=20]**

1. What are the problems of left recursion? Define ambiguous grammar with example. Discuss about S – attributed grammar. [2 + 3 + 5]

2. List some applications of syntax directed translation. Define type system. Describe the architecture of LR parsing. [3 + 3 + 4]

3. Why do we need back patching? Explain. Convert the following code into 3AC. [5 + 5]

```
N = A + B – C * D
FOR(I=0; I<N; I++
{
        X = N * 2 + 3;
        Y = N * 3 + 2
}
Z = (X + Y) – (X – Y)
```

Section B

Short Answer Questions
Attempt any EIGHT questions. **[8×5=40]**

4. Describe the analysis model of a compiler. [5]

5. Computer the FIRST and FOLLOW of all the non – terminals in following grammar. [5]
   $S \rightarrow Bb \mid Dd$
   $B \rightarrow aB \mid \in$
   $D \rightarrow dD \mid \in$

6. Explain the structure of symbol table. [5]

7. Why do we need intermediate code? Explain. [5]

8. Which machine is used to recognize token? Discuss with an example. [5]

9. Differentiate between parse tree and syntax tree. [5]

10. Write the working mechanism of Recursive Descent Parser. [5]

11. How do you convert Boolean expressions to intermediate code? Explain. [5]

12. Differentiate between bottom up and top down parsing. Discuss about run time storage management. [2 + 3]