Code No. 6354 / M

FACULTY OF ENGINEERING

B.E. 3/4 (CSE) II – Semester (Main) Examination, June 2014

Subject : Compiler Construction

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1 What is cross compiler? Why is bootstrapping required to generate cross compilers? 2

2 Write short notes on input buffering. 2

3 Find first and follow set for the following grammar. 3

$S \rightarrow aBDh$
$B \rightarrow cC$
$C \rightarrow bC|\varepsilon$
$D \rightarrow EF$
$E \rightarrow g|\varepsilon$
$F \rightarrow f|\varepsilon$

4 Why SLR and LALR are more economical to construct than canonical LR? 2

5 What is SDD? What are the applications of syntax directed translation? 3

6 Describe static scope and dynamic scope. 2

7 Briefly explain type conversion and coercion. 3

8 List out the various types of three address statements represent the following statement in to triple representation 3

X[i] : = y ;

9 Construct the DAG for the following statement 3

x = y * z
w = p + y
y = y * z
p = w - x

10 State the major properties of dataflow analysis. 2

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PART – B (50 Marks)

11 a) Explain the translation phases of a compiler for the given expression. 6

P = i + r * 60

b) Write short notes on LEX tool. 4

12 Construct CLR parsing table for the below grammar. 10

$S \rightarrow AA$

$A \rightarrow Aa|b$

13 a) What are synthesized attributes and inherited attributes explain with suitable context free grammar. 5

b) Explain data structures for implementing symbol table. 5

14 a) Consider the following piece of code for searching an element x in an array A[100] 5

```
begin
        location = -1
        i = 0
        while (i < 100) do
        begin
                if A[ i ] = x then location = i
                i = i + 1
        end
end
```

b) Discuss about garbage collection in detail. 5

15 a) Explain code optimization techniques. 5

b) Explain issues in the code generation. 5

16 Explain how to compute data flow equations using live variable analysis by considering any flow graph. 10

17 Write short notes on the following :

a) Explain problems in top-down parsing. 4

b) Error recovery techniques in various phases 3

c) Discuss using diagram “Displays” 3

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