FACULTY OF INFORMATICS
B.E. 3/4 (IT) II – Semester (Main) Examination, May 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 a translator? List different types of translators.	2
2	What is bootstrapping?	3
3	Define the terms pattern and lexeme.	2
4	What is the role of a parser in a compiler?	2
5	Write the strategies used for error recovery.	3
6	What is syntax directed definition?	2
7	What is a dependency graph? Give one example.	3
8	Write three-address code and quadruples for the statement $a = b * - c + b * - c$.	3
9	Define temporal locality and spatial locality.	3
10	What is a semilattice?	2

PART – B (50 Marks)

11 a) Write about various data structures used in a compiler.   5
    b) Draw a transition diagram for recognizing the lenemis matching the token relop. 5

12 Construct predictive parsing table for the following grammar.   10

$$S \rightarrow 0S1 \mid 01$$
$$S \rightarrow +SS \mid * SS \mid a$$
$$S \rightarrow S(S)S \mid \in$$
$$S \rightarrow S + S \mid SS \mid (S) \mid S * \mid a$$

13 Verify whether the following grammar is LALR(1) or not   10

$$S \rightarrow Aa \mid bAc \mid dc \mid bda$$
$$A \rightarrow d$$

14 Write the syntax directed definition for the following grammar and also draw the
    annotated parse tree for the input string $3 * 5 + 4n$.   10

$$L \rightarrow En$$
$$E \rightarrow E + T \mid T$$
$$T \rightarrow T * F \mid F$$
$$F \rightarrow (E) \mid digit$$

15 a) Explain the strategies for dynamic storage allocation.   5
    b) Write about the performance metrics used in the design of a garbage collector.   5

16 a) Explain the techniques used for semantic preserving transformation.   5
    b) Explain the basic loader functions.   5

17 Write short notes on :
    a) Bootstrap loader   4
    b) Input buffering in lexical analysis   3
    c) Optimization of basic blocks   3

******