Code No. : 5293/M

FACULTY OF INFORMATICS
B.E.3/4 (I.T) II Semester (Main) Examination, May/June 2012
COMPILER CONSTRUCTION (Elective – I)

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. Write a regular expression to identify floating point numbers. **3**
2. What is a cross compiler ? **2**
3. Define left recursion removal, remove left recursion from **3**
   $E \rightarrow E + T \mid T$
   $T \rightarrow T * F \mid F$
   $F \rightarrow (F) \mid id$
4. Defferentiate between pars and phase. **2**
5. Write LR (0) items for the grammar $S \rightarrow S\ (S) \mid E$ **2**
6. Write the two address code for the expression $a * (b + c)$. **2**
7. What is a procedure activation record ? What are its contents ? **3**
8. Write the following expression in Quadruple and Triple form a : = b*c + b*c|d **3**
9. What is a basic block ? How is it recognized ? **3**
10. Enumerate the ways a symbol table be organized. **2**

PART – B **50 Marks**

11. a) Explain about various phases of a complier. **5**
    b) Write about various data structures that support the phases of a compiler. **5**

12. Consider the following grammar 10

Declaration → type var-list

type → int| float

var-list → identifier, var- list | identifier

a) left factor the above grammar

b) compute first and follow sets of the resulting grammar

c) construct LL(1) parsing table.

13. Construct the DFA of LR(0) items and SLR(1) parsing table for the following grammar 10

E → (L) | a

L → EL | E

14. Write the attribute grammar for the following grammar 10

exp → exp + term | exp – term | term

term → term * factor | factor

factor → (exp) | number

and also construct the parse tree for (34 – 3) * 42.

15. a) Distinguish between dynamic and static storage allocations of a language. 5

b) Compare and contrast symbol table organization of block structured and non-block structured languages. 5

16. a) Write about various code-optimization techniques with an example. 5

b) Explain about code generation for if - and while statements. 5

17. Write short notes on

a) Recursive descent parsing 3

b) Yacc 3

c) Generating code from DAGs. 4