00816

B.Tech. IN COMPUTER SCIENCE & ENGINEERING

Term-End Examination

June, 2013

BICS-016 : SYSTEM PROGRAMMING AND COMPILER DESIGN

Time : 3 hours   *Maximum Marks : 70*

*Note :   Attempt **any seven** questions. All questions carry equal marks.*

1.   (a)   What do you mean by LR parsers ?   4

     (b)   Write a syntax directed definition to   6
           generate three address code for FOR loop
           in C language.

2.   Consider the regular expression given below
           a/(bc)*d)$^+$

     (a)   Construct NFA using Thompson's method.   4

     (b)   Construct the minimized DFA for the NFA   6
           obtained in 2[a].

3.   Consider the following grammar   10
     S → AS/b
     A → SA/a
     Construct SLR parser for this grammar.

4. (a) Generate three address code for the following statement 5

for $(j = 1; j < 10; j ++) x : = y + z$

(b) Define synthesized and inherited attributes with examples. 5

5. (a) What are the various phases of compiler ? Write the role of each phase. 6

(b) How will you make a grammar suitable for a predictive parser ? 4

6. (a) What is ambigous grammar ? Explain with an example. 5

(b) What are the advantages of LALR over SLR parsers ? 5

7. (a) What is symbol table ? Discuss the various attributes stored in symbol table. 5

(b) Explain various storage allocation strategies. Which storage allocation model is to be used if a language allows recursion ? 5

8. (a) Describe the different data structures used in symbol table implementation. 5

(b) Define basic blocks and flow graphs. 5

9. (a) Write quadruples, triples and indirect triples **6** of following expression :

$- (a + b) + (c + d) - (a + b + c)$

(b) Describe the code optimization techniques **4** with suitable examples.

10. Write short notes on *any two* of the following :

                                                      5x2=10

(a) Local optimization

(b) Type checking

(c) Handle pruning.

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