Registration No. : | | | | | | | | | | |

Total number of printed pages – 2

B. Tech

PCCS 4305

Sixth Semester Back Examination – 2015

COMPILER DESIGN

BRANCH : CSE

QUESTION CODE : M 236

Full Marks – 70

Time : 3 Hours

*Answer Question No. **1** which is compulsory and any **five** from the rest.*
The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2×10

   (a) What is a compiler ?

   (b) What is a symbol table ?

   (c) Mention the back?end phases of a compiler.

   (d) Differentiate tokens, patterns, lexeme.

   (e) Write a regular expression for an identifier.

   (f) List the various error recovery strategies for a lexical analysis.

   (g) List the properties of LR parser.

   (h) What is meant by handle pruning ?

   (i) What are the various methods of implementing three address statements ?

   (j) List the different storage allocation strategies.

2. (a) Explain in detail the process of compilation. Illustrate the output of each phase of compilation for the input "a = (b + c)* (b + c) * 2" 5

   (b) Obtain the minimized state DFA for the regular expression (a/b)*a using subset construction method. 5

P.T.O.

3. (a) What are the advantages of LALR parsing over SLR and CLR methods? 5

(b) Describe the syntax directed translation procedure for assignment statements with integers and mixed types and explain. 5

4. Construct the predictive parser for the following grammar : 10

$E \rightarrow TE'$

$E' \rightarrow +TE' \mid \square$

$T \rightarrow FT'$

$T' \rightarrow *FT' \mid \square$

$F \rightarrow (E) \mid id$

5. (a) What are the different types of errors a program can contain ? List out the error handling strategies. 5

(b) Write an algorithm to partition a sequence of three-address statements into basic blocks. 5

6. (a) Consider the following grammar

$S \rightarrow AS \mid b$

$A \rightarrow SA \mid a$

Construct the SLR parse table for the grammar. Show the actions of the parser for the input string "abab". 5

(b) Elaborate on the peephole optimization. 5

7. (a) Explain about the various storage allocation strategies. 5

(b) Draw the DAG for the expression a: = b *-c + b*-c. 5

8. Write short notes on any **two** : 5×2

(a) Compiler vs Interpreter

(b) LEX

(c) YACC

(d) Flow Analysis.