

Registration No. :

--	--	--	--	--	--	--	--	--	--

Total number of printed pages – 2

B. Tech
PCCS4305(New)

Sixth Semester (Back) Examination – 2013

COMPILER DESIGN

BRANCH : IT

QUESTION CODE : B 235

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

- What is LL(1) grammar ? Give the properties of LL(1) grammar.
- Define handle pruning with an example
- What are the components of LR parser ? How the parsing table for LR parser is created ?
- Eliminate the left recursion in the following grammar
 $A \rightarrow Bc \mid d$
 $B \rightarrow Be \mid Af \mid k$
- Draw the parse tree for right most derivation for the string id_id^*id using the grammar, $E \rightarrow E + E \mid E * E \mid (E) \mid id$.
- What is an ambiguous grammar ? What problem may occur due to ambiguous grammar ?
- What is the difference between cross compiler and bootstrap compiler ?
- Do you think an ambiguous grammar can be LL(1) ? Justify your answer.
- What is dead code elimination ? Is it so necessary ?
- What is the role of a symbol table in the compilation process ?

P.T.O.

2. (a) What is the purpose of DAG ? Explain how to represent the following expression using DAG $x = y * z + y * z$. 5
- (b) What are the two functions needed for the construction of predictive parsing table ? 5
3. Briefly explain the different phases of a compiler with a neat diagram and suitable example. 10
4. (a) What is FIRST and FOLLOW ? Briefly explain with suitable example. 5
- (b) Explain the construction of DFA from NFA with suitable example. 5
5. (a) What are the different kinds of intermediate representations of expressions ? Give examples. 5
- (b) What is DAG ? Draw the DAG & write the three address code for the given expression $a + a * (b-c) + (b-c) * d$. 5
6. (a) What is SSD ? What are the different attributes used for non terminals in SSD ? 5
- (b) Construct an NFA for the regular expression $(a|b)^* abb$. 5
7. (a) What are the different error recovery strategies ? Discuss. 5
- (b) Explain the error recovery process in predictive parsing. 5
8. Write short notes on any **two** : 5 × 2
 - (a) Activation records
 - (b) Address Descriptors
 - (c) Flow graphs
 - (d) Peephole Optimization.

