# Printed Pages: 2

#### Paper Code: ECS-603

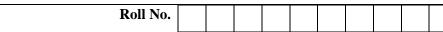
## **B.Tech.** (SEM VI) Back Paper EXAMINATION, 2015-16 **COMPILER DESIGN**

#### [Time: 3 hrs.]

Note- Attempt All Questions. All Questions carry equal marks.

- 1. Attempt any four of the following:
  - (a) Discuss the role of machine architecture in compiler design.
  - (b) Discuss the challenges in compiler design.
  - (c) Discuss the merits and demerits of single pas compiler and multipas compiler.
  - (d) What is cross compiler?
  - (e) What do you understand by back patching?
  - (f) Discuss the role of look ahead operator with the help of example.
- 2. Attempt any four of the following:
  - (a) Discuss the role of preliminary scanning.
  - (b) Explain how LEX tool can be used in designing lexical analyzer?
  - (c) Explain the input buffer scheme in implementation of lexical analyzer.
  - (d) What do you understand by transition diagram and how it is useful in designing lexical analyzer?
  - (e) Compare the performance of DFA with and without minimized states with respect to runtime complexity and storage space complexity.
  - (f) Discuss three popular data structures used for implementing symbol table.
- 3. Attempt any two of the following:
  - (a) Discuss basic parsing techniques.
  - (b) Explain left recursion. Check the following grammar; if it is left recursive eliminate it.  $E \rightarrow E + T/T$ 
    - T→T\*F/F
    - $F \rightarrow (E)/id$
  - (c) Consider the context free grammar
    - $S \rightarrow 0S1|01$  and string 000111
    - (i) Write left most derivation for the string.
    - (ii) Write rightmost derivation for the string.
    - (iii) Draw parse tree for the string.
    - Is the grammar ambiguous or unambiguous? Justify your answer. (iv)
- 4. Attempt any two of the following:
  - (a) Construct a predictive parsing table for the following grammar
    - $S \rightarrow i E + S S1|a$  $S1 \rightarrow e S|\xi$

[10x2=20]



### [Max. Marks: 100]

[5x4=20]

[5x4=20]

[10x2=20]

- (b) Define three address code. Write quadruples, Triples and indirect triples for the following expression

   (x+y)\*(y+z)+(x+y+z)
- (c) What is loop optimization? Discuss various types of loop optimization with the help of examples.
- 5. Write short notes on any two of the following:

[10x2=20]

- (a) Basic block diagram of compiler along with its working.
- (b) Types of error occurring in each phase of compilation with examples.
- (c) Characteristics of good object code generator.