

R09/SS**Code: 9A05504****B.Tech III Year I Semester (R09) Supplementary Examinations June 2016****COMPILER DESIGN**

(Computer Science & Engineering)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Explain different phases of compiler.
(b) Differentiate between compiler and interpreter.
- 2 (a) Construct LL(1) parse table for the following grammar:
 $S \rightarrow Aa|bAc|Bc|bBa$
 $A \rightarrow d$
 $B \rightarrow d$
(b) What are the preliminary steps that are to be carried out during parsing? Explain with suitable example.
- 3 (a) Show that the following grammar is LL(1) but not SLR(1).
 $S \rightarrow AaAb | BbBa$
 $A \rightarrow \epsilon$
 $B \rightarrow \epsilon$
(b) What is Shift-Reduce and Reduce-Reduce conflict? How these can be resolved? With examples explain in which condition S-R and R-R conflict can occur in SLR, canonical LR and LALR parsers. (Make use of LR(0), LR(1).
- 4 (a) What is a type checker? How does it work?
(b) Write short notes on static and dynamic type checking.
- 5 Explain in detail about run-time storage management
- 6 Write notes on the following code optimization techniques:
(a) Frequency reduction.
(b) Mathematical Identities.
- 7 (a) What is meant by constant folding? Explain it with an example.
(b) Write the algorithm to detect induction variables
- 8 What is the role of labeled tree in code generation? Explain with example
