Roll No. .....

24488

B. Tech. 7th Semester (CSE)

Examination – December, 2014

COMPILER DESIGN

Paper : CSE-405-F

Time : Three hours] *[Maximum Marks : 100*

Before answering the question, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt ***five*** questions in all, selecting one question from each Section. Question No. 1 is ***compulsory***. All questions carry equal marks.

1. (a) Write short note on compiler construction tools. 5

(b) Consider the grammar : 5

$$S \rightarrow aSbS \mid bSaS \mid \varepsilon$$

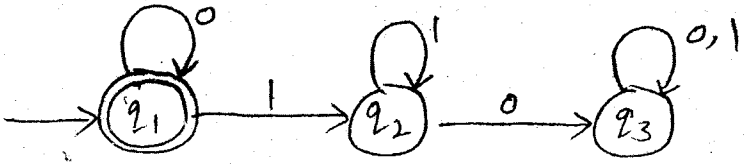
Show that this grammar is ambiguous by constructing two different leftmost derivations for the sentence abab.

(c) Register and address descriptor in code generation. 5

(d) Compare single pass and multipass compiler. 5

SECTION – A

2. (a) Design the regular expression for given transition diagram : 10



(b) Construct a DFA with reduced states equivalent to the regular expression $10+(00+1)0*10$. 10

3. (a) Explain the various phases of compiler. 10

(b) What is a LEX ? Discuss its role in compiler design. 10

SECTION – B

4. (a) What is predictive parsing ? Explain with example. 10

(b) Show with the help of example that no LL (1) grammar can be ambiguous. 10

5. (a) Define LR parser. Write down its advantages and limitations. Explain the algorithm of LR parser. 12

(b) Explain canonical LR parser. 8

SECTION – C

6. What is symbol table ? Explain the data structures used to construct symbol tables. 20

7. (a) Discuss about syntactic and semantic phase errors. 10

(b) What is three address code ? Explain the type of three address statements. 10

SECTION – D

8. (a) Explain basic blocks and flow graphs in code generation. 10

(b) Explain the transformation on basic blocks. 10

9. Write short notes on :

(a) Machine dependent code, 7

(b) Code generation, 6

(c) Register allocation and assignment. 7
