Total No. of Pages 2 Roll No.....

VI-SEMESTER B.Tech.(SE)
END SEMESTER EXAMINATION May- 2018

SE-306 Compiler Design

Time: 3:00 Hours Max. Marks: 50

Note:Attempt any Five questions

Q.No. 1

A. Compute FIRST and FOLLOW sets and Construct a predictive parsing table for the following grammar,where S is the start symbol. [7]

$S \rightarrow iEtSS_1 \mid a$

$S_1 \rightarrow eS \mid \epsilon$

$E \rightarrow b$ (where 'ϵ' denotes epsilon)

B. Consider following CFG: [3]

$S \rightarrow Bb \mid a$

$B \rightarrow Bc \mid Sd$

$B \rightarrow e$; Find out left recursion and remove it.

Q.No. 2

A. Construct SLR parsing table for the following grammar, where S is th start symbol [7]

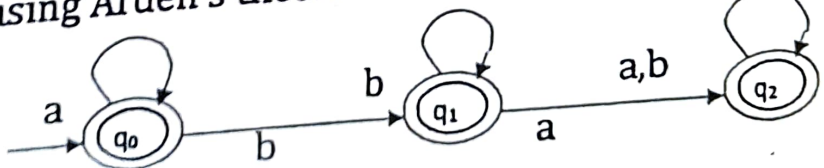
$S \rightarrow CC$

$C \rightarrow cC \mid d$

B. What are the different error recovery strategies adopted in compli ?explain [3]

Q.No. 3

A. Construct a regular expression(RE) corresponding to the followin FA using Arden's theorem [5]



B. Consider following grammar and test whether the grammar is LL(1) or not ? [5]

$S \rightarrow 1AB \mid \epsilon$
$A \rightarrow 1AC \mid 0C$
$B \rightarrow 0S$
$C \rightarrow 1$

Q.No. 4

A. What is the role of Push down automata (PDA) in syntax analysis? Design a PDA for Language $L=\{ a^n b^n c^n \text{ for } n>=0\}$ [5]

B. Give syntax tree, Directed acyclic graph (DAG) And three address code for expression if $(x>0)$ then $x= 3*(y+1)$ else $y = y+1$. [5]

Q.No. 5

A. What is the use of FA in lexical analysis? Design a DFA for strings over {0, 1} having an even number of 0's and odd no of 1's. [5]

B. Convert the following grammar to CNF and GNF

$S \rightarrow bA|aB$, $A \rightarrow bAA|aS|a$, $B \rightarrow aBB|bS|b$ [5]

Q.No. 6

A. Explain code optimization by eliminating induction variables and code motion with suitable examples. [5]

B. Translate the given expression by three address code and quadruple,triples and indirect triples representation [5]
$a = -b*(c+d)$

Q.No. 7

A. Design a context free grammar(CFG) for the language $L= \{a^n b^n c^m d^m$ for $n>=1, m>=1\}$ [5]

B. Discuss symbol table organization and significance of symbol table at run time and compile time. [5]