CS 6 SEM SYSTEM PROGRAMMING AND COMPILER CONSTRUCTION JUN 2016

Q.P. Code : 581500   (3 Hours)   [Total Marks : 80

N.B. : (1) Question No. 1 is **compulsory**.
(2) Attempt any **three** from the remaining questions.
(3) Assume suitable **data** if **necessary**.
(4) **Figures** to the **right** indicate **full** marks.

1. (a) What is the role of an automata in compiler design.   5
   (b) Elliminate Left recursion in the following grammar (Remove Direct and   5
   Indirect recursion)
   $S \rightarrow Aa \mid b$
   $A \rightarrow Ac \mid Sd \mid \varepsilon$
   (c) What is an activation record? Draw diagram of General Activation record   5
   and explain the purpose of different fields of an activation record.
   (d) What is the difference between Compiler and Interpreter.   5

2. (a) Explain with an example Quadruples , Triples, Indirect triples.   10
   (b) What is the difference between Dynamic Loading and Dynamic Linking   10
   explain with an example

3. (a) Write a note on JAVA compiler environment.   5
   (b) Write a brief note on Design of an Editor.   5
   (c) Explain synthesized and Inherited attributes used in Syntax Directed   5
   Definition. a2zSubjects.com
   (d) Find FIRST and FOLLOW Set for given grammar below   5
   $E \rightarrow T E'$ $E' \rightarrow + T E' \mid \varepsilon$
   $T \rightarrow F T'$ $T' \rightarrow * F T' \mid \varepsilon$
   $F \rightarrow (E)$ $F \rightarrow id$

4. (a) Explain different Code Optimization technics along with an example.   10
   (b) For the following grammar construct LR(0) parser table   10
   $S \rightarrow aCDe$
   $C \rightarrow Cbc$
   $C \rightarrow b$
   $D \rightarrow d$
   And Parse the string abbcbcde. Show contents of stack and i/p buffer and
   action taken after each step.

[TURN OVER

5. (a) Draw and explain DAG and represent the following example with it.   10
   $(a / b) + (a / b) * (c * d)$

   (b) What are the different phases of Compiler ? Illustrate compilers internal   10
   representation of source program for following statement after each phase
   Amount $= P + P * N * R / 100$

6. (a) With reference to Assembler explain following tables with suitable example.   10

       (i)   POT   (ii)   MOT
       (iii)   ST   (iv)   LT

   (b) What are the different issues in design of Code Generator ? Explain with an   10
   example.