May - 16

(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→Aa | b
A→Ac | Sd | ε
  (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.
  (d) Find FIRST and FOLLOW Set for given grammar below   5
$E \rightarrow T E'$ $E' \rightarrow + T E' | ε$
$T \rightarrow F T'$ $T' \rightarrow * F T' | ε$
$F \rightarrow (E)$ $F \rightarrow id$

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.

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.

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