Q.P.Code:11586

(3 Hours)   Total Marks: 80

N.B.: (1) Question No. 1 is compulsory.
(2) Attempt any THREE questions out of remaining five questions.
(3) In all 4 questions to be attempted.
(4) Assume Suitable data if necessary.
(5) Figures in brackets on the right hand side indicate full marks.

Q1.   (a) Define System Programming? State difference between Application Programs
          and System programs?   (05)
      (b) Explain different types of text editors in brief.   (05)
      (c) Explain the java compiler environment.   (05)
      (d) State difference between LL parser and LR parser.   (05)

Q2.   (a) Explain the design of two pass assembler with flowchart and databases.
          (Clearly show entries in databases.)   (10)

      (b) What do you mean by operator precedence grammar? With the help of
          following given grammar, parse the input string " a+b*c*d".   (10)

          $E \rightarrow E+T|T$
          $T \rightarrow T*V|V$
          $V \rightarrow a|b|c|d$

Q3.   (a) Explain the working of two pass macro processor with neat flowcharts and databases.
          (Clearly show entries in databases.)   (10)

      (b) Explain different types of code optimization techniques in compiler design. (10)

Q4.   (a) Construct LL(1) parsing table for the following grammar:-   (10)
              $S \rightarrow aBDh$
              $B \rightarrow cC$
              $C \rightarrow bC | \acute{\epsilon}$
              $D \rightarrow EF$
              $E \rightarrow g | \acute{\epsilon}$
              $F \rightarrow f | \acute{\epsilon}$
          Check whether the string " acbgh" is valid or not.

      (b) Discuss different issues in design of code generator.   (10)

Q5.   (a) Explain different types of Intermediate Code representation with examples? (10)
      (b) Explain working of direct linking loader with example, showing entries in
          different databases built by DLL.   (10)

Q6.   (a) Explain the different phases of compiler with suitable example?   (10)
      (b) Write short note on: (Any Two)   (10)
              (i) Syntax Directed Definition
              (ii) LEX & YACC
              (iii) garbage collection and compaction

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