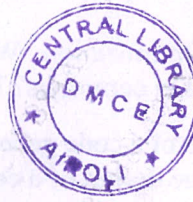TE- comp - sem Ⅵ - R-19- C-scheme   14.01.2025

(3 Hours)   Total Marks: 80

N.B: (1) Question No. 1 is compulsory.
       (2) Attempt any three questions out of the remaining five questions.
       (3) Make suitable assumptions wherever necessary.

Q.1. A. With a neat diagram, explain the sequence of system programs involved from   5
          writing source code to executing a program.

      B. Explain the process of loading and linking with a neat diagram.   5

      C. Write the structure of a simple macro definition and a corresponding macro call 5
          with suitable example.

      D. What are tokens, lexemes, and patterns in lexical analysis? Give examples..   5

Q.2. A. Consider the following Assembly Program: -   10
          START 100
          READ N
          MOVER BREG, '=1'
          MOVEM BREG, TERM
        A: MULT BREG, TERM
          LTORG
          MOVER CREG, '=2'
          MOVEM BREG, '=5'
          LTORG
          N DS 1
          TERM DS 1
          END
      Generate Pass-1 and Pass-2 and show the content of Database table involved in it.

      B. What are the different types of intermediate code representations in compilers? 10
          Explain with examples.

Q.3. A. Explain Macro calls within the Macros with appropriate example?   10

      B. Design a Predictive Parser for the given grammar. Mention all the steps.   10
          E → TQ
          T → FR
          Q → +TQ | -TQ | E
          R → *FR | /FR | E
          F → (E) | id

Q.4. A. List and describe the data structures used in the design of a two-pass macro   10
          processor with suitable example.

      B. Explain the operator precedence parser with a suitable example.   10

QP code
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Prog code:
1T00736

Q.5. A. Define Code Optimization. What are the different types of code optimization 10
techniques used in compilers? Provide an example of each.

B. Explain the role of a code generator in a compiler. What are the issues to be 10
considered in the design of a code generator?

Q.6. A. Discuss the concept of "Relocation" in loaders. Explain the various methods of 10
handling relocation during the loading process with examples..

B. Explain the phases of compiler with suitable example. 10

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