C. U. SHAH UNIVERSITY
Winter Examination-2022

Subject Name : Translator Design

Subject Code : 4TE07TDE1   **Branch: B.Tech (CE)**

Semester: 7   **Date: 24/11/2022**   **Time: 11:00 To 02:00**   **Marks: 70**

Instructions:
 (1) Use of Programmable calculator & any other electronic instrument is prohibited.
 (2) Instructions written on main answer book are strictly to be obeyed.
 (3) Draw neat diagrams and figures (if necessary) at right places.
 (4) Assume suitable data if needed.

Q-1   **Attempt the following questions:**   **(14)**

 a) What is Language Processor?
 b) What is macro prototype statement?
 c) What is difference between a compiler and an interpreter?
 d) Define: Inherited Attributes
 e) Write full form of LL(K) and LR(K) grammar.
 f) What is handle and handle pruning?
 g) Write rule for removing left factoring from the grammar.
 h) Write regular expression for "identifier " token.
 i) What is operator grammar?
 j) Define: Symbol table
 k) What is role of assembler and linker?
 l) Define: Semantic Error.
 m) What is purpose of code optimization phase?
 n) Define: Macro

Attempt any four questions from Q-2 to Q-8

Q-2   **Attempt all questions**   **(14)**
 A   Write all the compilation phases with input and output to each phase for   **07**
          following statements.
               a=a+b*c*2
 B   Write a note on components of language processing system.   **07**

Q-3   **Attempt all questions**   **(14)**
 A   Construct NFA- ε (null) using Thomson's construction method and   **07**
          convert it into DFA using subset construction method for following
          regular expression:
               (a | b) * abb
 B   Write a brief note on input buffering techniques.   **07**

Q-4   **Attempt all questions**   **(14)**
   A   Construct LL (1) parsing table for following grammar.   **07**
         S →   aABb
         A →   c | ε
         B →   d | ε
   B   Write a note on operator preceding parsing method.   **07**

Q-5   **Attempt all questions**   **(14)**
   A   Construct LR(1) parsing table for following grammar.   **07**
         S →   L = R
         S →   R
         L →   * R
         L → id
         R → L

   B   Write a S-attributed SDD of a simple desk calculator. Draw annotated   **07**
         parse tree for 3*5+4 expression.

Q-6   **Attempt all questions**   **(14)**
   A   Explain various issues in design of code generator.   **07**
   B   What is Intermediate form of the code? What are the advantages of it?   **07**
         Write three address code for following expression.
                 (a + b) * (c + d)

Q-7   **Attempt all questions**   **(14)**
   A   Compare: Static v/s Dynamic Memory Allocation   **07**
   B   Explain any three code optimization methods with examples.   **07**

Q-8   **Attempt all questions**   **(14)**
   A   List and explain advance macro facility with suitable example.   **07**
   B   Write a note on Two pass assembler.   **07**