1st Internal Examination of 3rd Semester of MSc (CS/IT) 2022
Paper: Compiler Design

Marks: 40 **Time: 1hr 30 mins**

Answer any four questions from the following-

1. a) Write about different phases of a compiler. 5

   b) What is left recursive grammar? How can we eliminate left recursion? 1+2=3

   c) What is symbol table? 2

2. Show the annotated parse tree and different translation schemes that are available to convert the infix expression 9-5+2 into postfix by using the following grammar- 3+7=10

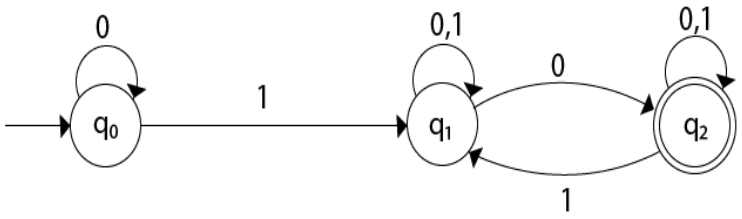
   expr ⟶ expr + term

   expr ⟶ expr – term

   expr ⟶ term

   term ⟶ 0|1|2|.....|9

3. Convert the following NFA to DFA- 10



4. a) Briefly describe the structure of a Lex program. 5

   b) What is shift/reduce and reduce/reduce conflict? 3

   c) LR parser makes shift reduce decisions by maintaining sets of items. How can we find Closure of any Item I? 2

5. Construct the predictive parser table for the following grammar- 10

   $E \longrightarrow TE'$

   $E' \longrightarrow +T E' \mid \epsilon$

   $T \longrightarrow F T'$

   $T' \longrightarrow *FT' \mid \epsilon$

   $F \longrightarrow (E) \mid id$