

C. U. SHAH UNIVERSITY

Summer Examination-2022

Subject Name: Translator Design

Subject Code: 4TE07TDE1

Branch: B.Tech (CE)

Semester: 7

Date: 22/04/2022

Time: 02:30 To 05:30

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

- a) Define: Compiler
- b) Define: Parse Tree
- c) Define: Linker
- d) Define: Ambiguous Grammar
- e) What is the difference between lexeme and token?
- f) What is the difference between macro and subroutine?
- g) What is the difference between Synthesized attribute and Inherited attribute?
- h) What is the difference between top down parsing and bottom up parsing?
- i) what is the difference between one pass assembler and two pass assembler?
- j) What do you mean by Activation Record?
- k) What do you mean by DAG?
- l) What is Regular Expression?
- m) What is Handle Pruning?
- n) What is Language Processor?

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

Q-2 Attempt all questions (14)

- (a) Explain different phases of compiler in detail. (07)
- (b) Explain left factoring in detail with suitable example (07)

Q-3 Attempt all questions (14)

- (a) What do you mean by nested macro? Explain it with suitable example. (07)
- (b) What are the different kinds of error in compiler design? Explain different error recovery strategies. (07)

Q-4 Attempt all questions (14)

- (a) Construct the NFA using Thompson's notation for following regular (07)



- expression and then convert it to DFA. $a+(c|d)b^*f\#$
- (b) For the following grammar (07)
- $D \rightarrow TL;$
 $L \rightarrow L, id | id$
 $T \rightarrow int | float$
- 1) Remove left recursion (if required)
 - 2) Find first and follow for each non-terminal for Resultant grammar
 - 3) Construct LL (1) parsing table
 - 4) Parse the following string (show stack actions clearly) and
 - 5) Draw parse tree for the input: int id, id;
- Q-5 Attempt all questions (14)**
- (a) Construct SLR parsing table for the following grammar: (07)
- $E \rightarrow E+T|T$
 $T \rightarrow T*F|F$
 $F \rightarrow (E)|a$
- (b) Implement the following grammar using Recursive Descent Parser. (07)
- $S \rightarrow Aa | bAc | bBa$
 $A \rightarrow d$
 $B \rightarrow d$
- Q-6 Attempt all questions (14)**
- (a) Write a note on symbol table management. (07)
- (b) Explain quadruple, triple and indirect triple with suitable example. (07)
- Q-7 Attempt all questions (14)**
- (a) Write a note on peephole optimization. (07)
- (b) Write a note on static and dynamic memory allocation. What do you mean by dangling reference? (07)
- Q-8 Attempt all questions (14)**
- (a) Explain various code optimization technique. (07)
- (b) Explain code generator design issues. (07)

