

III B.Tech I Semester Supplementary Examinations, October/November - 2019
COMPILER DESIGN
(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

PART -A

(22 Marks)

- 1 a) What are the features of a Lexical analyzer? [3M]
b) Explain in brief about left most and right most derivations. [4M]
c) List out the rules for FIRST and FOLLOW. [3M]
d) Describe in brief about types of LR parsers. [4M]
e) What is common sub expression elimination? [4M]
f) Discuss about Instruction Selection and Register allocation. [4M]

PART -B

(48 Marks)

- | | | |
|---|--|----------------------|
| 2 | a) Define Compiler? Explain in brief about various language processing tools.
b) Construct a Finite Automaton for the Regular Expression $(00+11)^*$?
c) Differentiate between NFA and DFA. | [4M]
[8M]
[4M] |
| 3 | a) Discuss in brief about LL(1) Grammars.
b) Differentiate between Top down and bottom up parsing techniques.
c) Construct FIRST and FOLLOW for the Grammar:
$E \rightarrow E + T/T, \quad T \rightarrow T^* F/F, \quad F \rightarrow (E)/id.$ | [3M]
[8M]
[5M] |
| 4 | a) Construct LALR Parsing table for the grammar $S \rightarrow L=R/R, \quad L \rightarrow *R/id, \quad R \rightarrow L$.
b) Define Ambiguous Grammar? Check whether the grammar $S \rightarrow aAB, \quad A \rightarrow bC/cd, \quad C \rightarrow cd, \quad B \rightarrow c/d$, is Ambiguous or not? | [8M]
[8M] |
| 5 | a) Define Intermediate code generator. Explain in brief about different forms of Intermediate code generation.
b) Explain in brief about Type checking and Type Conversion. | [8M]
[8M] |
| 6 | a) Differentiate between Static and Dynamic Storage allocation Strategies.
b) What is dangling Reference in storage allocation? Explain with an Example. | [8M]
[8M] |
| 7 | a) Explain in brief about peephole optimization techniques.
b) What is a Flow Graph? Explain how a given program can be converted in to a Flow graph? | [8M]
[8M] |

* * * *