BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)

B. Tech. Sem - V COMPUTER SCIENCE & BUSINESS SYSTEMS : SUMMER : 2024

SUBJECT: COMPILER DESIGN

Day : Thursday
Date : 09/05/2024

S-24167-2024

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.

1) All questions are **COMPULSORY**.
2) Figures to the **RIGHT** indicate **FULL** marks.
3) Assume suitable data **WHEREVER** necessary.
4) Draw neat diagrams **WHEREVER** necessary.

Q.1 What is the need of regular expression? Design Finite Automata for following Regular Expression **(10)**

$(ab+ba)^*aa(ab+ba)^*$.

OR

Q.1 Define tokens. Differentiate between lexeme, tokens and patterns with suitable examples. **(10)**

Q.2 Check whether given grammar is LL(1) or not **(10)**

$S \rightarrow aSbS$

$S \rightarrow bSaS$

$S \rightarrow \varepsilon$

OR

Q.2 Define Left Factoring. Eliminate left factoring from $S \rightarrow bSSaaS \mid bSSaSb \mid bSb \mid a$. **(10)**

Q.3 Construct a CLR parsing table for the given context-free grammar. **(10)**

$S \rightarrow AA$

$A \rightarrow aA \mid b$

OR

Q.3 Given types of Top Down Parsers. Construct transition diagram for following grammar using SLR(1) $A \rightarrow (A) \mid a$. **(10)**

Q.4 What are the contents of a symbol table? Explain in detail the symbol table organization for Block-Structured languages. **(10)**

OR

Q.4 Write short notes on functions of semantic analysis. **(10)**

Q.5 Describe the principle sources of optimization? Give the classification of code optimization. **(10)**

OR

Q.5 Discuss various issues in the design of code generator. **(10)**

Q.6 Explain how code motion and frequency reduction used for loop optimizations? **(10)**

OR

Q.6 Describe the Register allocation and target code generator in detail. **(10)**

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