BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - V Computer Science & Business Systems : WINTER : 2024
SUBJECT: COMPILER DESIGN

Day : Wednesday
Date : 04/12/2024 **W-24167-2024** Time : 02:30 PM-05:30 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 labeled diagrams **WHEREVER** necessary.

Q.1 Design the DFA for following regular expression. **(10)**

$(10+10)^*(111+01^*)$

OR

Q.1 Sketch the block diagram of phases of compiler and identify the main function of each phase. **(10)**

Q.2 Verify whether the following grammar is LL(1) or NOT. **(10)**

$E \rightarrow E+T \mid T$

$T \rightarrow T*F \mid F$

$F \rightarrow (F) \mid a \mid b$

OR

Q.2 Design parse tree using predictive parser from following grammar **(10)**

$S \rightarrow (S) \mid \in$

Input string (( )) .

Q.3 Construct LR parsing table for the following Grammar **(10)**

$E \rightarrow E+T \mid T$

$T \rightarrow T*F \mid F$

$F \rightarrow (E) \mid id$

OR

Q.3 Evaluate predictive parsing table and parse the string id+id*id and find FIRST & FOLLOW. **(10)**

$E \rightarrow E+T \mid$

$T \rightarrow T*F \mid F$

$F \rightarrow (E) \mid id$

Q.4 Explain in detail evaluation and flow of attribute in syntax tree. **(10)**

OR

Q.4 Give the difference between syntax directed definitions and translation schemes. **(10)**

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

OR

Q.5 Explain in detail about the various issues in code generation with examples. **(10)**

Q.6 Explain in detail Register allocation and target code generation. **(10)**

OR

Q.6 Explain the concept of target code generator and instruction scheduling. **(10)**

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