

B. TECH. (COMPUTER SCIENCE & BUSINESS SYSTEMS) (CBCS - 2018 COURSE)

Computer Science & Business Systems

B.Tech. (CSBS) Sem - V :SUMMER : 2023

SUBJECT : COMPILER DESIGN

Day : Thursday

Time : 10:00 AM-01:00 PM

Date : 11-05-2023

S-20461-2023

Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagram **WHEREVER** necessary.
- 4) Assume suitable data if necessary.

- Q.1 Compare compiler and interpreter with suitable diagram. [10]
- OR
- Q.1 Draw block diagram of phases of compiler and indicate the main functions 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 Write the regular expression for the language accepting the string which are starting with 1 and ending with 0, over $\Sigma(0, 1)$. [10]
- Q.3 Find FIRST and FOLLOW of following grammar: [10]
 $E \rightarrow TQ$
 $T \rightarrow FR$
 $Q \rightarrow + TQ \mid - TQ \mid E$
 $R \rightarrow * FR \mid / FR \mid E$
 $F \rightarrow (E) \mid id$
- OR
- Q.3 Construct the parse tree using LR(0) parser for the following grammar: [10]
 $S \rightarrow AA$
 $A \rightarrow aA \mid b$
- Q.4 What is CLR(1) parser? Explain with example. [10]
- OR
- Q.4 Construct predictive parser for the following grammar: [10]
 $E \rightarrow E + T \mid T$
 $T \rightarrow T * F \mid F$
 $F \rightarrow (E) \mid id$
- Q.5 What is need of symbol table? Explain in detail. [10]
- OR
- Q.5 Write detailed notes on code improvement. [10]
- Q.6 Explain the principal sources of optimization. [10]
- OR
- Q.6 Explain the issues in design of code generator. [10]

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