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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (CSE / AI&ML) (Sem.-7)

COMPILER DESIGN

Subject Code : BTCS601-18

M.Code : 93988

Date of Examination: 04-12-2023

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a) Illustrate dead code elimination and copy propagation with the help of examples.
- b) Discuss the significance and structure of symbol table.
- c) What is the need of line reconstruction in compilation?
- d) Write a brief note on YACC.
- e) What is the process of recursive descent parsing?
- f) What is the use of context free grammars in the process of compilation?
- g) List the issues faced in code generation.
- h) List the shift reduces parsing conflicts that arise during parsing. Give appropriate examples.
- i) What are the components of a general activation record?
- j) Differentiate between synthesized and inherited attributes in a syntax directed definition.

SECTION-B

2. Discuss the role of a lexical analyzer. Describe the process of token specification and recognition.
3. Write a short note on syntax error handling. What are the various error recovery strategies used by a parser?
4. What are the various types of intermediate code representations? Give an example of a syntax directed definition.
5. **Discuss the issues in :**
 - a) Storage organization
 - b) Code generation.
6. How are dependency graphs used for determining an evaluation order for the attribute instances in a parse tree? What are S-attributed and L-attributed definitions?

SECTION-C

7. What is the need of various types of language processors? Elaborate the structure of a compiler. Explain the phases of compilation and write the output of each phase for expression $a := b + c * 50$.
8. Define the principal sources of code optimization with the help of appropriate examples. Explain the process of global data flow analysis.
9. Show that the following grammar is LL(1) but not SLR(1).

$S \rightarrow AaAb \mid BbBa$

$A \rightarrow \epsilon$

$B \rightarrow \epsilon$

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.