

# Question Paper

Exam Date & Time: 07-Oct-2023 (03:15 PM - 04:15 PM)



CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY

DESIGN OF LANGUAGE PROCESSOR [CS450]

Marks: 30

Duration: 60 mins.

## Section - 1

Answer all the questions.

1    Memory for named variables is allocated by . (1)

[Linker](#) [Compiler](#) [Loader](#) [Operator](#)

2    Identify the most powerful parser? (1)

[LALR](#) [Canonical LR](#) [SLR](#) [D. Operator-Precedence](#)

3    Dynamic allocation requires which steps: (1)

[Creating the dynamic space.](#) [Storing its address in a pointer so that the space can be accessed](#) [A & B](#) [None of both above](#)

4    \_\_\_\_\_ are used to keep track of memory locations where the values of identifiers are stored. (1)

[Register descriptor](#) [Address descriptor](#) [Both A and B](#) [None of the above](#)

5    Why is handle pruning used? (1)

[Canonical Derivation Sequence](#) [Both A & B](#) [Canonical Reduction Sequence](#) [None](#)

6    A grammar is said to be operator precedence grammar if it has... (1)

[No R.H.S. of any production has a  \$\in\$ .](#) [No two non-terminals are adjacent.](#) [A & B](#) [None of above both](#)

7    \_\_\_\_\_ starts from the leaf nodes of a tree and works in upward direction till it reaches the root node. (1)

[Code optimization](#) [Code making](#) [Bottom-up parsing](#) [Code distributor](#)

8    Back patching is the activity of filling up the unspecified information of labels by using the appropriate semantic expression in during the code generation process. (1)

[True](#) [False](#)

9    The grammar  $S \rightarrow SS \mid (S) \mid \epsilon$  is not suitable for CLR parsing because the grammar is/are (1)

1. Ambiguous
2. Left Recursive
3. Non-deterministic

[Only I](#)   [Only I and II](#)   [Only II and III](#)   [I, II And III](#)  
[I](#)   [II](#)   [III](#)

10

YACC is an acronym for:

(1)

[Yes Another Compile Compiler](#)   [Yet Another Compile Compiler](#)   [Yet Another Compiler Compiler](#)   [Yes Another Compiler Compiler](#)

11

Whenever a procedure is executed, its activation record is stored on the stack, also known as?

(1)

[Access Stack](#)   [Control stack](#)   [Formal Stack](#)   [Return Stack](#)

12

Convert the pre-fix expression to in-fix

(1)

--\*+ABC\*DE+FG

[\(A-B\)\\*C+\(D-E\)-\(F+G\)](#)   [\(A+B\)\\*C-\(D-E\)\\*\(F-G\)](#)   [\(A+B-C\)\\*\(D-E\)\\*\(F+G\)](#)   [\(A+B\)\\*C-\(D-E\)-\(F+G\)](#)

13

\_\_\_\_\_ is a tool that depicts the structure of basic blocks, helps to see the flow of values flowing among the basic blocks, and offers optimization too.

(1)

[DAG](#)   [CAG](#)   [SAG](#)   [PAG](#)

14

Quadruples Has four fields... op, arg1, arg2 and result.

(1)

[True](#)   [False](#)

15

\_\_\_\_\_ is a compiler implementation technique that is used to implement virtual machine interpreters.

(1)

[Polish notation](#)   [n-tuple notation](#)   [abstract syntax trees](#)   [threaded code](#)

## Section - 2

Answer 3 out of 4 questions.

Solve any 3 questions out of 4 questions

1

Prepare LALR(1) parsing table for given grammar

(5)

$S \rightarrow AaAb / BaBa$

$A \rightarrow \epsilon$

$B \rightarrow \epsilon$

2

What is a three address code? Mention its types. How would you implement the three address statements? Explain with examples.

(5)

3

What is Peephole Optimization? Explain with example

(5)

4

list and elaborate on the issues of the code generator

(5)

-----End-----