BACHELOR OF SCIENCE (COMPUTER SCIENCE) (CBCS - 2018 COURSE)
T.Y.B.Sc.(Computer Science) Sem-VI :SUMMER- 2022
SUBJECT : COMPILER CONSTRUCTION

Day : Thursday
Date : 7/7/2022

S-20129-2022

Time : 11:00 AM-02:00 PM
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.

Q.1 Attempt **ANY TWO** of the following : **(12)**

a) Describe various phases of compiler in detail.
b) Elaborate top-down parsing with the help of suitable example.
c) Differentiate between static and dynamic memory allocation methods.

Q.2 Attempt **ANY TWO** of the following : **(12)**

a) Explain any two code optimization techniques with the help of suitable example.
b) Write a note on regular language . What are properties of Kleen Closure?
c) With a neat labeled diagram, explain the format of symbol-table and also discuss the tree structure representation of scope information.

Q.3 Attempt **ANY TWO** of the following : **(12)**

a) What is shift reduce parser? Explain with example.
b) Write a note on context free grammar.
c) Construct a parse tree for the given grammar,

$G : E \longrightarrow E + T \mid T, \quad E \longrightarrow T * F \mid F$
$F \longrightarrow (E) \mid id$

Q.4 Attempt **ANY THREE** of the following: **(12)**

a) What are activation records? Why are they needed?
b) Write a short note on LEX program.
c) What is meant by ambiguous grammar?
d) Consider the following grammar,

$A \longrightarrow ABd \mid Aa \mid a$
$B \longrightarrow Bc \mid b$

Remove left recursion.

Q.5 Attempt **ANY FOUR** of the following : **(12)**

a) Show the following grammar :

$S \longrightarrow AaAb \mid BbBa$
$A \longrightarrow \in$
$B \longrightarrow \in$

Is LL (1) and parse the input string "ba".
b) Discuss any two closure properties on sets.
c) Perform shift reduce parsing of the input string "id1 + id2 + id3"
Consider the grammar –

$E \longrightarrow E + E$
$E \longrightarrow E * E \mid id$

d) Compare and contrast SLR and LALR parser.
e) What is intermediate code? Write two benefits of intermediate code.
f) Describe finite automata in brief.

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