$\qquad$ Summer Examination-2020

## Subject Name : Translator Design

Subject Code : 4TE07TDE1
Branch: B.Tech (CE)
Time : 10:30 To 01:30
Marks :70
Semester : 7
Date : 03/03/2020
Instructions:
(1) Use of Programmable calculator \& any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

## Q-1 Attempt the following questions:

a) DAG representation of a basic block allows $\qquad$
a) Automatic detection of local common sub expressions.
b) Detection of induction variables.
c) Automatic detection of loop variant.
d) None of the mentioned.
b) A series of statements explaining how the data is to be processed is called
a) Assembly
b) Machine
c) COBOL
d) Program
c) An intermediate code form is
a) Postfix Notation
b) Syntax Trees
c) Three address code
d) All of the mentioned
d) Which grammar violates rules of an operator grammar?
(i) P-> QR
(ii) $\mathrm{P}->\mathrm{Q} s \mathrm{R}$ (iii) $\mathrm{P}->\varepsilon$ (iv) $\mathrm{P}->\mathrm{Q} \mathrm{t}$
a) (i) only
b) (i) and (iii)
c) (ii) and (iii) only
d) (iii) and (iv) only
e) What data structure in a complier is used for managing information about variables and their attributes?
a) Abstract syntax tree
b) Symbol table
c) Semantic stack
d) Parse table
f) Type checking is normally done during?
a) Lexical Analysis
b) Syntax Analysis
c) Syntax Directed Translation
d) Code generation
g) In an absolute loading scheme, which loader function is accomplished by programmer?
a). Allocation
b). Linking
c). Reallocation
d). both (a) and (b)
h) In a bottom up evaluation of a syntax direction definition ,inherited attributes can
a) Always be evaluated b) Be evaluated only if the definition is $L-$ attributed
c) Evaluation only done if the definition has synthesized attributes
d) None of the mentioned
i) A grammar that produces more than one parse tree for same sentence is
called
a) Ambiguous b) Unambiguous
c) Regular
d) None of the mentioned
j) What is top-down parser?
k) What is Regular expression?
l) Define :Language processor
m) Define: Preprocessor
n) Compare NFA and DFA

Attempt any four questions from Q-2 to Q-8
Q-2 Attempt all questions
(a) What is code optimization? Explain different types of code optimization.
(b) Explain different data structure used in design of macro processor.

## Q-3 Attempt all questions

(a) Explain cousin of compiler.
(b) What is role of lexical analyzer? Explain different input buffering technique.

Q-4 Attempt all questions
(a) Conversation from Regular Expression to DFA without constructing NFA of $(\mathbf{a}+\mathbf{b}) * \mathbf{a b b}$
(b) Design LL(1) parsing table for the following grammar and check it is ll(1) or not:
$\mathrm{A} \rightarrow \mathrm{AcB}|\mathrm{cC}| \mathrm{C} \quad, \mathrm{B} \rightarrow \mathrm{bB}|\mathrm{b}, \mathrm{C} \rightarrow \mathrm{CaB}| \mathrm{BbB} \mid \mathrm{B}$
Q-5 Attempt all questions
(a) Construct syntax tree and DAG for $(\mathrm{a}+\mathrm{b}) *(\mathrm{a}+\mathrm{b}+\mathrm{c}) *(\mathrm{a}+\mathrm{b}+\mathrm{c}+\mathrm{d})$
(b) Write a note on Linker and loader.

Q-6 Attempt all questions
(a) Write a note on Phases of compiler.
(b) Explain following 1.Left recursion 2. Left factoring

Q-7 Attempt all questions
(a) What is peephole optimization? Explain different techniques of it
(b) Construct LR (0) item set for the given grammar.
$\mathrm{S} \rightarrow \mathrm{AaAb} \mid \mathrm{BbBa}, \mathrm{A} \rightarrow \varepsilon, \mathrm{B} \rightarrow \varepsilon$.
Q-8 Attempt all questions
(a) Write a note on static memory and dynamic memory allocation
(b) Write a note on syntax directed Translated mechanism.

