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T.Y.B.Sc. (Computer Science)
CS-366: COMPILER CONSTRUCTION
(CBCS 2019 Pattern) (Semester-VI)

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates:
1) *Figures to the right indicate full marks.*
2) *All questions are compulsory.*

Q1) Attempt any Eight of the following (out of 10).   [8×1=8|

a) What is the use of lookahead pointer.

b) State true or false, "Target code is generated in the analysis phase of the compiler".

c) What is the output of LEX program?

d) Terminals can have synthesized attributes, but not inherited attributes. State true or false.

e) Define operand descriptors.

f) State True or False. The yywrap() lex library function by default always return 1.

g) List the two aspects of compilation.

h) List the different types of conflicts that occur in LR parser.

i) What is handle pruning?

j) List the techniques used in code optimization.

Q2) Attempt any Four of the following (out of 5).　　　　　　　　　　　　[2×4=8]

a) Define Annotated Parse tree. Give an example.

b) List and explain in short any two LEX library function.

c) Calculate FIRST and follow for the following.

S→ a |^| (R)

T→ S, T|S

R→ T

d) Give 2 differences between synthesized and inherited attributes.

e) Compute LEADING and TRAILING symbols of the following grammar.

E → E+T | T

T→ T*F | F

F→ (E) | id

Q3) Attempt any two of the following (out of 3)　　　　　　　　　　　　[2×4=8]

a) Write a RDP parser for the following grammar.

S → aA | SbB

A → aA | bB

B → b

b) Give difference between single pass compiler & multipass compiler.

c) Check whether the given grammar is LL(1) or not.

S → A

A → aA | Ad

B → bBc | f

C → g

Q4) Attempt any Two of the following (out of 3) [2×4=8]

a) Check whether the given grammar is SLR(1) or not.

   $N \rightarrow V = E \mid E$

   $E \rightarrow V$

   $V \rightarrow a \mid * E$

b) Consider the expression $a = b*(-c) + b*(-c)$. Give Triple representation and quadruple representation.

c) Check whether given grammar is operator precedence or not.

   $S \rightarrow <L> \mid a$

   $L \rightarrow L,S \mid S$

Q5) Attempt any ONE of the following (out of 2) [3×1=3]

a) Write a LEX program to find sum of first n numbers.

b) Construct DAG for the following expressions

   $- b * (a + c) + (a + c) * d$

   $- i = i + 5$

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