Total No. of Questions : 5]

SEAT No. : ____

P1313

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[6055]- 406
T.Y. B.Sc. (Computer Science)
CS - 366 : COMPILER CONSTRUCTION
(2019 Pattern) (CBCS) (Semester - VI)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figure to right indicate full marks.***

Q1) Attempt any EIGHT of the following (Out of 10) **[8×1=8]**

a) Define cross - compiler.

b) State the advantages of Boot-strapping.

c) What is sentinels?

d) State the use of function retract( ).

e) Name the types of LR parsers.

f) What does second 'L' stand for LL(1) parser?

g) What is the purpose of augmenting the grammar?

h) Define synthesize attribute.

i) What is basic block?

j) Define DAG.

Q2) Attempt any four of the following. **[4×2=8]**

a) Construct the DAG for the following expression.

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

b) What are the basic task & auxiliary task of a lexical analyzes?

c) Write any two limitations of top down parsing.

d) Define S-attributed grammar and L-attributed grammar.

e) Differentiate between top-down parsing & Bottom-up parsing.

P.T.O.

Q3) Attempt any two of the following. **[2×4=8]**

a) Check whether the following grammar is SLR or not.

$S \rightarrow 0A2$

$A \rightarrow 1A1 \mid 1$

b) Write a lex program to find the sum of n numbers.

c) Write recursive descent parser for the following grammar.

$S \rightarrow aSa \mid sb \mid ss \mid b$

Q4) Attempt any two of the following. **[2×4=8]**

a) Write the steps of creation of lexical analyzer on lex. Explain the lex library functions associated with lex.

b) Check whether following grammar is LALR (1) or not.

$S \rightarrow A\,a\;A\,b \mid B\,b\;B\,a$

$A \rightarrow \in$

$B \rightarrow \in$

c) For the input expression (2+3) * (3+4) design SDD and draw annotated tree using following grammar.

$L \rightarrow E$

$E \rightarrow E_1 + T \mid T$

$T \rightarrow T_1 * F \mid F$

$F \rightarrow (E) \mid \text{digit}$

Q5) Attempt any ONE of the following. **[1×3=3]**

a) Consider the following operator grammar

$E \rightarrow E + E \mid E * E \mid id$

Construct the operation precedence relation table.

b) Construct triple and indirect triple for the following strings.

$a + b * c + d * e \uparrow f \,\&\, x + b * c$