

Total No. of Questions : 5]

SEAT No. :

**P5162**

[Total No. of Pages : 3

**[5823]-606**

**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.

**P.T.O.**

**Q2)** Attempt any Four of the following (out of 5).

**[2×4=8]**

- Define Annotated Parse tree. Give an example.
- List and explain in short any two LEX library function.
- Calculate FIRST and follow for the following.

$$S \rightarrow a \mid (R)$$

$$T \rightarrow S, T \mid S$$

$$R \rightarrow T$$

- Give 2 differences between synthesized and inherited attributes.
- Compute LEADING and TRAILING symbols of the following grammar.

$$E \rightarrow E+T \mid T$$

$$T \rightarrow T * F \mid F$$

$$F \rightarrow (E) \mid id$$

**Q3)** Attempt any two of the following (out of 3)

**[2×4=8]**

- Write a RDP parser for the following grammar.

$$S \rightarrow aA \mid SbB$$

$$A \rightarrow aA \mid bB$$

$$B \rightarrow b$$

- Give difference between single pass compiler & multipass compiler.
- Check whether the given grammar is LL(1) or not.

$$S \rightarrow A$$

$$A \rightarrow aA \mid Ad$$

$$B \rightarrow bBc \mid f$$

$$C \rightarrow g$$

**Q4)** Attempt any Two of the following (out of 3)

**[2×4=8]**

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

$$N \rightarrow V = E \mid E$$

$$E \rightarrow V$$

$$V \rightarrow a /* E$$

- 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.

$$S \rightarrow \langle L \rangle \mid a$$

$$L \rightarrow L, S \mid S$$

**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

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

$$- i = i + 5$$

