



Progressive Education Society's
Modern College of Arts, Science & Commerce (Autonomous)
Ganeshkhind, Pune – 16
End Semester Examination: March-April- 2025
Faculty: Science and Technology

Program : B.Sc.Computer Science
Program (Specific) : Computer Science
Code : (BScComp05)
Class : T.Y.B.Sc. Computer Science
Name of the Course : Compiler Construction
Course Code : 24-CS-366

Semester : VI
SET : A
Course Type : CC
Max.Marks: 35
Paper :
Time : 2Hrs

Instructions to the candidate:

- 1) *There are 4 sections in the question paper. Write each section on a separate page.*
- 2) *All Sections are compulsory.*
- 3) *Figures to the right indicate full marks.*
- 4) *Draw a well labeled diagram wherever necessary.*

SECTION : A

Q1) Solve the following Multiple-Choice Question

[5]

1. Which is the final phase of the compiler?
 - a. Lexical analysis
 - b. syntax analysis
 - c. code optimization
 - d. Code generation
2. Which function is used to start or resume scanning?
 - a. yyerror()
 - b. yytext()
 - c. yywrap()
 - d. yylex()
3. A bottom up parser generates,
 - a. Rightmost derivation
 - b. Leftmost derivation
 - c. Rightmost derivation in reverse
 - d. leftmost derivation in reverse
4. Which refers are useful tool for determining an evaluation order for the attribute instance in a given parse tree?
 - a. Wait –for- graph
 - b. dependency graph
 - c. sparse –tree- graph
 - d. None of above
5. Source codes generally have a number of instructions, which are always executed in sequence and are considered as the basic blocks of the ,
 - a. token
 - b. erroe
 - c. code
 - d. tree

Q2) Attempt ANY FOUR of the following in one sentence:

[4]

- a. Define Bootstrapping.
- b. What is the purpose of lexical analysis?
- c. What is meant by ambiguous grammar ?
- d. What is SDT?
- e. Define dead code.

- f. What is annotated parse tree?

SECTION : B

Q3) Attempt ANY FOUR of the following:

[8]

- Explain the structure of the compiler.
- What is sentinel? Describe with example.
- What is elimination of left recursion? Describe with example.
- Find the first and follow of the following grammar
S \rightarrow a/bSb | aAb
A \rightarrow bS | bAb
- What is an inherited attribute ? explain with example.
- What is three address code? Describe with example

SECTION : C

Q4) Attempt ANY FOUR of the following:

[8]

- Check whether the following grammar is SLR
S \rightarrow Aa / bAc / dc / bda
A \rightarrow d
- Compute LEADING AND TRAILING symbols of the following grammar.
S \rightarrow S-B / B
B \rightarrow B * A / A
A \rightarrow (S) / id
- Sketch the expression tree for (A+B +F) / (C-D*E)
- Write a lex program for calculating the square of given no?
- Explain any two code optimization techniques.
- Write a short note on input buffering

SECTION : D

Q5) Attempt ANY TWO of the following:

[10]

- Check whether the following grammar is CLR
S \rightarrow AA
A \rightarrow aA / b
- For input expression (5+(26-3))*2 design SDD and draw an annotated tree using the following grammar.
E \rightarrow E+T / E-T / T
T \rightarrow T * F / F
F \rightarrow (E) / id
- Construct DAG for the following expression
 - (a+a *(b-c))+((b-c) *d)
 - ((a+b) *(c-d)) / f *(a+b)
- Check following grammar is LALR grammar or not
S \rightarrow bABe
A \rightarrow Adp / ϵ
B \rightarrow BpC / e
C \rightarrow a