

Please check that this question paper contains 09 questions and 02 printed pages within first ten minutes.

MORNING Evening

[Total No. of Questions: 09]

16 JAN 2023

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Uni. Roll No.

Program: B.Tech. (Batch 2018 onward)

Semester: 6th

Name of Subject: Compiler Design

Subject Code: PCCS-112

Paper ID: 17188

Scientific calculator is not allowed.

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

- 1) Parts A and B are compulsory
- 2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
- 3) Any missing data may be assumed appropriately

Part – A

[Marks: 02 each]

Q1.

- a) Define Peephole optimization.
- b) What is the importance of symbol table at run time and compile time?
- c) Compare bottom-up and top-down parsers.
- d) Illustrate the concept of Type Checking.
- e) Explain the concept of YACC.
- f) Construct the three address code for $-a * -b * -c + a * b$

Part – B

[Marks: 04 each]

- Q2.** Explain various phases of a compiler with diagram in detail.
- Q3.** Discuss how tokens are generated in LEX.
- Q4.** Summarize the criteria for loop optimization of machine independent code.
- Q5.** Compare recursive and non-recursive descent parsers.
- Q6.** Explain the different types of intermediate code representations.
- Q7.** Formulate the code sequence using code generation algorithm for the following expression.

$$W: = (A - B) + (A - C) + (A - C)$$

Q8. Construct SLR parser for the following grammar:

$$S \rightarrow aSSb, S \rightarrow aSS, S \rightarrow c$$

OR

How syntax directed translation scheme is implemented? Explain with example.

Q9. Explain following optimizations with examples:

- a) Common sub expression elimination
- b) Strength reduction
- c) Code movement
- d) Variable propagation

OR

Discuss the necessity of optimization in compilation and the various problems in optimizing compiler design.
