



K18P 0751

Reg. No. :

Name :

**Fourth Semester M.C.A. Degree (Regular/Supplementary/Improvement)
Examination, July 2018
(2014 Admission Onwards)**

MCA4C21 : SYSTEM PROGRAMMING & COMPILER DESIGN

Time : 3 Hours

Max. Marks : 80

- Instructions :** 1) Answer any ten questions from Section A. Each question carries three marks.
2) Answer all questions from Section B. Each question carries ten marks.

SECTION - A

Answer any ten questions. Each question carries three marks. (10×3=30)

1. Explain the listing and error reporting in assembler.
2. What is Macro and Macro Processor ?
3. What are the advanced macro facilities ?
4. What is the role of linkers and loaders ?
5. How translator can be constructed using Yacc ?
6. Define the terms :
 - a) Parse tree
 - b) Ambiguity
7. Construct the a) canonical LR and b) LALR sets of items for the grammar
 $S \rightarrow S S + \mid S S * \mid a$
8. What is a symbol table ?
9. What is top down and bottom up translation ?

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10. Define peephole optimization.
11. What is a basic block ?
12. Mention the issues to be considered while applying the techniques for code optimization.

SECTION - B

Answer **all** questions. **Each** question carries **ten** marks.

13. a) Describe some of the tasks that an assembler needs to perform. **10**
OR
b) Explain the concept Design of Macro processor with suitable figure and example. **10**
14. a) With a neat diagram explain the different phases of compiler. **10**
OR
b) What are tokens, patterns and lexemes ? Explain the role of lexical analyser using suitable figure. **10**
15. a) Explain the LALR table construction algorithm with suitable example. **10**
OR
b) Explain the concept of handle pruning with suitable example. **10**
16. a) What are the applications of Syntax directed translation ? Construct the syntax tree for the following grammar $S \rightarrow S S + \mid S S * \mid a$ and explain. **10**
OR
b) Explain bottom-up parsing of L-attributed SDD's with suitable example. **10**
17. a) Discuss the issues in the design of a code generator. **10**
OR
b) What are the basic blocks and how do you partition a three address code into basic blocks ? **10**