

K16P 0721

Reg. No. :

Name :

IV Semester M.C.A. Degree (Reg./Supple./Improve.) Examination, July 2016
(2014 Admn.)

MCA 4C21 : SYSTEM PROGRAMMING AND 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

Note : Answer **any ten** questions. **Each** question carries **three** marks.

1. Explain the purpose of pass 1 and pass 2 of assembler.
2. State the basic tasks a macro instruction processor performs.
3. What is optional parameter in macro ?
4. What is the function of a loader ?
5. Mention the issues in a lexical analyzer.
6. Write a short note on LEX.
7. How will you define a context free grammar ?
8. What is meant by predictive parsing ?
9. Write a short note on storage allocation schemas.
10. Differentiate between Top-down and bottom-up translation.
11. What are the issues in the design of code generators ?
12. What are the rules to determine the leaders of basic blocks ?

P.T.O.



SECTION - B

Note : Answer all questions. Each question carries ten marks.

13. a) i) Explain with example listing and error reporting in assembler.
ii) Explain in detail the MACRO expansion with example. State its algorithm and also describe how parameters are processed.
- OR
- b) Explain design of one pass macro-processor to handle nested macro calls.
14. a) Describe in detail about input buffering. Also explain about the tools used for constructing a compiler.
- OR
- b) Explain in detail about the role of Lexical analyzer with the possible error recovery actions.
15. a) i) What are preliminary steps that are to be carried out during passing ? Explain with suitable examples.
ii) What is a shift-reduce parser ? Explain in detail the conflicts that may occur during shift-reduce passing .

OR

- b) Consider the grammar given below :

$$E \rightarrow E + T$$

$$E \rightarrow T$$

$$T \rightarrow T * F$$

$$T \rightarrow F$$

$$F \rightarrow (E)$$

$$F \rightarrow id$$

Construct an LR passing table for the above grammar. Give the moves of LR parser on

id * id + id

a) i) Desc
stat

ii) Wri

b) Explai
strateg

a) i) Dis

ii) Wri

b) Expla

- a) i) Describe the method of generating syntax-directed definition for control statements. 6
- ii) Write a note on symbol tables. 4

OR

b) Explain in detail about the management of variable length and storage allocation strategies. 10

- a) i) Discuss about the run time storage management of a code generator. 6
- ii) Write a note on basic blocks and flow graphs. 4

OR

b) Explain the principle sources of code optimization in detail. 10

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