

Printed Pages : 3



CA410

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 214410

Roll No.

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M. C. A.

(SEM. IV) THEORY EXAMINATION, 2014-15
COMPILER DESIGN

Time : 3 Hours]

[Total Marks : 100

- Note :**
- (1) All questions are compulsory.
 - (2) All questions carry equal marks.

1 Attempt any four parts of the following : 5×4=20

- (a) What is translator ? Classify the translators.
- (b) Describe the synthesis – analysis model of compiler.
- (c) Discuss the role of Macros in programming languages.
- (d) Describe the basic structure of compiler.
- (e) Explain the term token, lexeme and pattern.
- (f) Discuss two compiler writing tools.

2 Attempt any two parts of the following : 10×2=20

- (a) What do you understand by single pass and multi-pass compiler ? Discuss their merits and demerits also.

- (b) Explain about basic parsing techniques. What is top down parsing ? Explain in detail.
- (c) Define the following :
- (i) Regular expression
 - (ii) Regular grammar
 - (iii) Context free grammar
 - (iv) Context sensitive grammar.

3 Attempt any two of the following : 10×2=20

- (a) What do you mean by left factoring ? Explain with the help of example, how left factoring can be avoided.
- (b) Consider the following :

$$E \rightarrow T + E / T$$

$$T \rightarrow V * T / V$$

$$V \rightarrow id$$

Write down the procedures for the non terminals of the grammar to make a recursive descent parser.

- (c) Discuss the role of syntax directed translation scheme.

4 Attempt any two of the following : 10×2=20

- (a) What is I.R. parser ? How it is different from SLR ? Construct LALR table for

$$S \rightarrow S$$

$$S \rightarrow aAd / bBd / aBc / bAc$$

- (b) What do you mean by DAG ? Explain the algorithm for constructing a DAG with the help of example.

- (c) Write short notes on the following : (any **two**)
- (i) Problem in code generation
 - (ii) Local and loop optimization
 - (iii) Run time storage management

5 Attempt any two of the following : 10×2=20

- (a) Describe the various code optimization techniques in detail.
- (b) How registers are allocated in code generation ? Differentiate among source code intermediate code and object code.
- (c) Explain any **two** of the following in detail :
- (i) Lexical phase errors
 - (ii) Syntactic phase errors
 - (iii) Semantic phase errors.
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