

7E4091

Roll No. : _____

Total Printed Pages : **3**

7E4091

B. Tech. (Sem. VII) (Re-Back) Examination, December-2012

Computer Engg.

7CS1 Compiler Construction

Time : 3 Hours]

[Maximum Marks : **80**

[Min. Passing Marks : **24**

*Attempt any five questions. Selecting one question from each unit.
All questions carry equal marks. Schematic diagrams must be
shown wherever necessary. Any data you feel missing suitably be
assumed and stated clearly. Units a quantities used/calculated
must be stated clearly.*

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. NIL

2. NIL

UNIT - I

- 1 (a) Discuss the merits and demerits of single pass and multipass compiler. 8
- (b) Explain the working of compiler and draw its block diagram. 8

OR

- 1 (a) Explain different phases of compiler. 8
- (b) Write short note on lexical analyzer generator. 8

UNIT - II

- (a) For a context free grammar, production are given as follows :

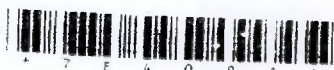
$$S \rightarrow AB$$

$$A \rightarrow aAb / ab$$

$$B \rightarrow CBd / cd$$

Write down the language accepted by these production.

8



- (b) What is operator precedence grammar. Using the operator precedence parsing algorithm construct parse for the string $id + id * id$

8

OR

- 2 (a) What is LR Parser ? How it is different from SLR.

8

- (b) Construct LALR table for

$$S \rightarrow S$$

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

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- (c) How error recovery is done in LR parsing.

4

UNIT - III

- 3 (a) Explain how syntax directed translation is converted into three address codes ?

8

- (b) What are different types of representation of three-address codes ? Write three address code for expression.

$$(a+b) * (c+d) + (a+b+c)$$

8

OR

- 3 Consider the grammar shown below :

$$E \rightarrow E_1 + T / E_1 - T / T$$

$$T \rightarrow (E) / Num$$

write translation scheme for above grammar write the annotated parse tree for statement $((4-7+1)-2)$. Eliminate the left recursion from above scheme.

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UNIT - IV

- 4 (a) Explain the different storage allocation strategies with suitable diagram with example.

8

- (b) Explain runtime support and storage organisation.

8

OR



- 4 (a) Explain the different parameter passing mechanism with C code. 8
- (b) Explain "Display mechanism" with suitable example. 8

UNIT - V

- 5 (a) Explain the different issues in design of a code generator. 8
- (b) Explain the various transformation on basic block with suitable example. 8

OR

- 5 Write short note on :
- (a) Peephole optimization.
- (b) Loop optimization.

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