

Register Number

B.TECH. DEGREE EXAMINATIONS: NOVEMBER 2009

Fifth Semester

INFORMATION TECHNOLOGY

U07IT505: Principles of Compiler Design

Time: Three hours

Maximum Marks: 100

Answer ALL the Questions:-

PART A (10 x 1 = 10 Marks)

1. ----- analyzes a program and prints it in such a way that the structure of the program becomes clearly visible.
a) Structure editors b) Pretty printers c) Static checkers d) Interpreters
2. ----- has a source language that is similar or identical to a conventional programming language.
a) Text formatters b) Silicon compilers c) Query interpreters d) All the above
3. On discovering an error, the parser discards input symbols one at a time until one of a designated set of synchronizing tokens is found
a) Panic-mode recovery b) Phrase level recovery
c) Error productions d) Global correction.
4. In a ----- the next input symbol is shifted onto the top of the stack
a) Reduce action b) Accept action c) Error action d) Shift action
5. ----- creates a new symbol table and returns a pointer to the new table.
a) mktable b) enter c) addwidth d) enterproc
6. The output of the code generator is-----
a) Input to the code generator b) Memory management
c) Target programs d) Instruction selection.
7. Mapping names in the source program to addresses of data objects in run time memory is done cooperatively by the front end and the code generator.
a) Input to the code generator b) memory management
c) Instruction selection d) Register allocation.
8. ----- is a sequence of consecutive statements in which flow of control enters at the beginning and leaves at the end without halt or possibility of branching except at the end.
a) Flow graphs b) loops c) Basic blocks d) Assignment statements.

9. ----- is a small, moving window on the target program.
- a) Peephole optimization b) flow of control optimizations
 c) Algebraic simplifications d) Use of machine idioms.
10. ----- to keep track of live procedure activations.
- a) Procedures b) Activation trees
 c) the scope of a declaration d) Control statements.

b) E

24. a) Ex

b) Exp

PART B (10 x 2 = 20 Marks)

25. a) Disc

11. Define back patching.
12. Draw the transition diagram for \geq
13. What are Error – Recovery strategies?
14. Write short notes on Left Factoring.
15. What are the benefits of using a machine independent intermediate form?
16. Define Quadruples.
17. What are the design issues of a code generator?
18. Define peephole optimization.
19. What are the techniques of loop optimization?
20. What are the Storage – Allocation strategies?

b) Descr

PART C (5 x 14 = 70 Marks)

21. a) Explain the phases of a compiler

(OR)

- b) What are Compiler – Construction tools? Explain.

22. a) Consider the grammar $S \rightarrow (L) \mid a$
 $L \rightarrow L, s \mid s$

- i) What are the terminals, non terminals and start symbols? (7)
 ii) Find parse trees for the following sentences: (7)
 1. (a,a) 2. (a, (a,a)) 3. (a, ((a,a), (a,a)))

(OR)

- b) Explain the role of parser.

23. a) Explain the types of Three-address statements

(OR)

b) Explain the details about Declarations

24. a) Explain the design issues of a code generator

(OR)

b) Explain the details about basic blocks and Flow graphs

25. a) Discuss in details about principal sources of optimization

(OR)

b) Describe the optimization of Basic Blocks.

(7)

(7)